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HISTORY

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My favorite Amazon didn't come from classic tales, but a 1970s television show. Every week, Diana Prince would spin around to transform into Wonder Woman, an Amazon princess who fought Nazis. According to the theme song, she could "Stop a bullet cold / Make the Axis fold / Change their minds and change the world." Idolizing her, I spent a lot of time trying to spin myself into an Amazon with super strength and bulletproof bracelets. (Sad to say, it didn't work.)

Wonder Woman's Amazon lineage can be traced back through comic books to Greek mythology to real warrior women: the Scythians. Their prowess with weapons and horses earned the admiration of the ancient Greeks, who then wove these women into their myths as foes for their greatest heroes.

The Scythians are not the only real Amazons in history. The past is full of them—from Boudica and Joan of Arc who scored iconic military victories, to Queen Elizabeth I of England and Empress Cixi of China who led their nations in times of transition. With their strength and smarts these women had to overcome not only their enemies but also the conventions of their times about what women could do. They were true wonder women, changing minds and changing the world.

Amy Briggs

Amy Briggs, Executive Editor

MET/SCALA, FLORENCE

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HISTORY

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in a Gibraltar cave, technological advances revealed it belonged to a late Stone Age woman whose origins lay in modern-day Turkey.

LUCKY LUMP The wad of birch tar (above) preserved Lola's entire genome. The material was used primarily in toolmaking, but it also had medical properties. Mildly antiseptic, people might have used it to ease a toothache, clean teeth, suppress hunger, or for the simple chewy pleasure of it.

THEIS ZETNER TROLLE JENSEN

LOLA'S APPEARANCE WAS RECONSTRUCTED THANKS TO THE 5,700-YEAR-OLD SALIVA SHE LEFT ON BIRCH-PITCH "GUM" DISCOVERED IN SOUTHERN DENMARK.

TOM BJÖRKLUND

NG MAPS

FIELDWORK by archaeologists ahead of tunnel construction led to the birch-tar find at Sylteholm on the Danish island of Lolland in the Baltic Sea. They also found evidence of toolmaking, but no human remains were present.

NEOLITHIC DNA

'Chewing Gum' Holds Ancient Genetic Secrets

A piece of birch pitch chewed by a Stone Age woman in Denmark opens exciting new vistas for genetic archaeology.

Chewed-up wads of tree pitch are not uncommon finds at Stone Age sites in northern Europe, but one little black blob of it has proved to be a goldmine of genetic information. The pitch (also called "tar") from a birch tree was ancient "chewing gum" that was preserved in mud after it was discarded. The gum contained human saliva, and scientists have been able to extract DNA from it.

Found on the island of Lolland in southern Denmark and carbon-dated to around 5,700 years ago, the gum preserved enough DNA that scientists were able to extract for the first time an entire ancient human genome from something other than human bones—a feat called "amazing" by Hannes Schroeder, who led a team at the University of Copenhagen. Schroeder said the gum is as well preserved as the best skull bones, considered the holy grail in ancient DNA. "This is a very valuable source of ancient DNA, especially for

THE BIRCH: A TREE WITH THE GIFT OF GUM

SILVER BIRCH FORESTS occur naturally throughout most of Europe, but the trees prefer colder climates and are more abundant in the boreal region of northern Europe. Researchers link birch bark with various possible Stone Age uses, such as layered mats or containers. Charred birch-bark rolls have been found that might have served as torches or tapers for lighting fires. But the main use of birch bark was to heat it to make pitch, or tar, a gluey black-brown substance used in Europe since at least the middle Pleistocene (approximately 750,000 to 125,000 years ago) to fasten stone blades to handles. Pieces of birch pitch have been found with tooth marks, prompting archaeologists to reason that as the pitch cooled and solidified, it was chewed to make it moldable again. The birch pitch chewed by Lola was found at Sylthom, the biggest Stone Age site in Denmark. Almost everything at the site was covered by mud, which preserved remains from Lola's mouth in the pitch. Stone Age birch gum is scattered wherever birches were prevalent, around Scandinavia and moving eastward toward Russia.

BIRCH TREES (RIGHT) ARE A FAMILIAR FEATURE OF THE NORTHERN EUROPEAN LANDSCAPE.
IMAGE SOURCE/GETTY IMAGES

time periods where we have no human remains," he said. The team's study, published in *Nature Communications*, yielded an approximation of the chewer's appearance: a young woman with dark skin, dark hair, and striking blue eyes. Researchers named her "Lola."

Tiny Details, Big Finds

In addition to the saliva, the gum preserved microbes from Lola's mouth (collectively known as her "oral microbiome"). This community of microorganisms can give insight into Lola's health and diet. Study of the microbes revealed she had severe periodontal disease. *Streptococcus pneumoniae*, the strain of bacteria that causes pneumonia, was also present, but whether Lola was suffering from pneumonia at the time she was chewing the gum isn't clear. The microbiome also revealed that Lola had eaten a meal containing duck and hazelnuts around the time she chewed the pitch.

All these findings taken together support the idea that Lola was a hunter-gatherer who lived during a transitional phase in the early Neolithic period in Denmark. Mesolithic hunter-gatherers were living side by side with farmers. Genetically, Lola is more closely related to hunter-gatherers from mainland Europe than to the people who lived in Scandinavia at that time. This suggests that southern Scandinavia was populated by immigration both from the south and the north along the Norwegian coast.

Chewed pitch is sometimes the only sign of a human presence at sites where physical remains are absent. Archaeologists can now turn to humble wads of chewing gum to secure valuable genetic information about individuals, researchers say, revealing how ancient populations changed over time, how healthy they were, and how they survived. ■

▲ **MESOLITHIC BONE TOOLS** FROM CIRCA 8700 B.C. FOUND ON DENMARK'S LOLLAND ISLAND, NEAR WHERE LOLA'S BIRCH-PITCH GUM WAS DISCARDED.
ALBUM/PRISMA

Fall of the Reich: The Red Army Takes Berlin

At the end of a brutal campaign in spring 1945, the Soviet Union's forces barreled into Berlin, the last refuge of Nazi Germany. Taking this city would be the final step for securing victory for the Allied powers and ending World War II in Europe.

By spring 1945 World War II had been raging in Europe for more than five years. Years of brutal battles resulted in massive losses of human life and destruction of towns and cities. Since 1941, the Soviet Union had been fighting Germany in eastern Europe, losing millions of soldiers as they repelled Hitler's invasion of Soviet territory.

In June 1944 successful Allied invasions in France allowed U.S. and British forces to capture German territory and press the Axis powers back. At the same time, the Soviets, led by Premier Joseph Stalin, began their campaign in the east. Over the year, the Red Army marched toward Berlin, intent on the destruction of Nazi Germany.

Soviets on the March

On June 22, 1944, three years to the day after German troops invaded Soviet territory, the Red Army launched Operation Bagration, a massive offensive on the eastern front aimed primarily at annihilating Army Group Center, the once mighty Nazi force that had reached the outskirts of Moscow in 1941 during Hitler's Operation Barbarossa. Having since recaptured from the Germans nearly all the ground held by the Soviet Union before the war began, the Red Army now advanced into areas that Joseph Stalin had annexed following his ill-fated pact with Adolph Hitler in

VICTORY OVER GERMANY In one of the war's most iconic images, Soviet soldiers raise their flag over the ruins of the Reichstag, Berlin, on May 2, 1945.

YEVGENY KHALDEI/GETTY IMAGES

THE YALTA CONFERENCE

IN FEBRUARY 1945 the three chief Allied leaders gathered at the resort town of Yalta in Crimea to discuss the end of World War II. Prime Minister Winston Churchill of the United Kingdom, President Franklin Roosevelt of the United States, and Premier Joseph Stalin of the Soviet Union saw that war in Europe was close to an end, but that victory in Japan was still uncertain. Their plans mapped out not only the future for postwar Germany and Eastern Europe, but also the terms for Soviet military participation in the Pacific theater to defeat Japan and end the war.

ALLIED LEADERS CHURCHILL, ROOSEVELT, AND STALIN POSE FOR THE CAMERAS AT THE YALTA CONFERENCE, HELD IN FEBRUARY 1945.
HULTON ARCHIVE/GETTY IMAGES

1939, including the Baltic states and Belarus, a borderland long disputed by Russia and Poland.

Deceptions indicating a Soviet offensive to the south around the Black Sea left Germans to the north exposed when nearly 1.5 million Soviet troops attacked. Hitler made things worse by not allowing forces caught in that onslaught to withdraw until it was too late. The German Fourth and Ninth Armies were decimated as Soviet pincers closed around them at Minsk. The Third Panzer Army was hard-hit as well. Russians then advanced into German-annexed Poland before halting to regroup in August at the Vistula River near Warsaw, where a determined uprising by Polish partisans against German occupation forces was eventually crushed.

The Red Army did not renew its offensive in Poland and take Warsaw until January 1945. In the meantime, Russian troops made great strides to the north—where they advanced from the Baltic states into East Prussia—and momentous gains to the south, where they invaded Romania and other nations allied with Germany. After Soviets seized the Ploesti oil fields and denied their output to fuel-hungry German forces, King Michael I of Romania ousted that country's pro-Nazi dictator, Ion Antonescu, and yielded to Russia. Bulgaria switched sides as well, but German troops kept Hungary from leaving the Axis until Budapest fell in February 1945. By then, Russians were poised to deliver the deathblow to Hitler's regime in Berlin—and dominate Eastern Europe for decades to come.

A SOVIET SOLDIER (RIGHT) EMBRACES AN AMERICAN SERVICEMAN NEAR THE ELBE RIVER IN APRIL 1945.
AP IMAGES/US ARMY

Divided and Conquered

Stalin had a strong hand to play when he met with U.S. president Franklin Roosevelt and British prime minister Winston Churchill at the Crimean city of Yalta in February 1945. Recent advances by the Red Army had positioned Soviets to occupy eastern Germany while American, British, and French troops occupied western Germany. Separate occupation zones for those forces were drawn up at Yalta along with postwar plans to divide Berlin, which was situated in the Soviet zone but would be partitioned among the Allied powers.

Battle of Berlin

THE ASSAULT on Berlin was launched on April 16, 1945. Two Soviet fronts (army groups) took part: the First Belorussian Front under Marshal Georgi Zhukov and the First Ukrainian Front led by Marshal Ivan Konev. Zhukov's forces advanced due west from the Oder River against the German Ninth Army, while Konev's forces crossed the Neisse River to the south and overwhelmed the Fourth Panzer Army. After sending two armies west to link up with the U.S. First Army along the Elbe River, Konev turned north with armored forces and sealed off Berlin on April 25, preventing the German 12th Army from relieving the capital. Russian troops then stormed Berlin, which fell on May 2.

Left unresolved was who would capture Berlin. After General Eisenhower's U.S. troops seized the Ruhr in early April, armed opposition wilted in western Germany but persisted in the east, where Russian soldiers enraged by the brutal German occupation of their homeland were raping German women and committing other atrocities. Millions of German civilians in the path of the Red Army were evacuated or fled westward on their own initiative to escape the Soviet occupation zone.

The Fall of Berlin

The final battle in the savage struggle between Germany and Russia opened before dawn on April 16, 1945, when Soviet artillery along the Oder River unleashed a thunderous bombardment that reverberated 40 miles away on the outskirts of Berlin. German troops had pulled back to avoid that pounding and held firm initially. But they could not long withstand onslaughts by the First Belorussian Front under Marshal Georgi Zhukov, hailed as the savior of Moscow, whose numerically superior forces now bludgeoned their way toward Berlin.

"They keep coming at us in hordes, wave after wave," reported a commander in the depleted German Ninth Army, mauled at Minsk the year before. "My men are fighting until they run out of ammunition," he added. "Then they are wiped out or completely overrun." To the south, Marshal Ivan Konev, commander

DEATH IN THE BUNKER

KNOWING defeat was at hand, on April 28, 1945, Adolf Hitler married his lover, Eva Braun, in the bunker under the Chancellery in Berlin. On April 30, as the Soviets conquered the city, the pair committed suicide: Hitler shot himself, and Braun took poison. Both bodies were burned, and Europe's nightmare neared its end.

ART EXPLORER/ALAMY

EXTRA THE STARS AND STRIPES EXTRA

HITLER DEAD

Fuehrer Fell at CP, German Radio Says; Doenitz at Helm, Vows War Will Continue

Churchill Hints Peace Is at Hand

V FOR VICTORY
Members of the public and armed forces celebrate Victory in Europe Day in London in May 1945.

BETTMANN/GETTY IMAGES

of the First Ukrainian Front, shredded the Fourth Panzer Army before pivoting toward Berlin to compete with Zhukov for that prize. "Whoever reaches Berlin first," said Stalin, "let him take it." Zhukov had a shorter path to the city and won the race, but Konev's swift advance drew a noose around the capital.

On April 26, a half million Soviets launched a furious assault on central Berlin, site of the Reich Chancellery—under which lay Hitler's bombproof Führerbunker—and the nearby Reichstag, the old German parliament building, abandoned after an arsonist set it ablaze in 1933 and Hitler seized emergency powers. Berlin's last-ditch defenders, including Waffen-SS units and civilians of the Volkssturm, a people's militia made up largely of boys and old men, were outmanned and outgunned. Many fought to the bitter end in subway tunnels and streets as the city became a funeral pyre for the Reich and the leader who drove it to ruin.

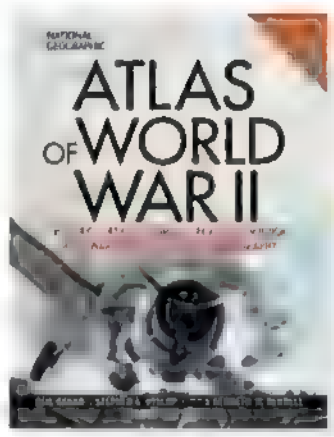
Official Surrender

On April 30, Adolf Hitler committed suicide while holed up in the Führerbunker; his body was cremated by aides. That evening, Soviet troops fought their way into the Reichstag and raised their red flag over the smoldering capital. German forces conceded defeat on May 2, 1945. Five days later on May 7, 1945, Grand Adm. Karl Dönitz, left in charge of the doomed Reich and its shattered armed forces, signed a formal unconditional surrender to the victorious Allies.

News of the surrender spread quickly, and "Victory in Europe Day," or "V-E Day," celebrations erupted all over the world. In Britain and the United States, jubilant crowds gathered in city streets and squares on May 8, while in Soviet states, their victory dance came on May 9.

Hitler had once proclaimed his Reich would last for a thousand years. It stood for only 12—thanks to the sacrifices of millions of people who gave their lives in the brave fight against the Axis powers.

NEIL KAGAN AND STEPHEN G. HYSLOP HAVE PARTNERED ON MANY HISTORY BOOKS, INCLUDING *EYEWITNESS TO THE CIVIL WAR, ATLAS OF THE CIVIL WAR, EYEWITNESS TO WORLD WAR II,* AND *THE SECRET HISTORY OF WORLD WAR II.*



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Junípero Serra: California's Founding Father

To convert native peoples and secure lands for Spain in the 18th century, Spanish priest Junípero Serra founded a chain of missions from which many of California's cities grew.

Man on a Mission

1749

Junípero Serra leaves the island of Mallorca and sets sail for New Spain to begin his missionary work.

1769

At the request of Spanish leader José Gálvez, Serra joins an expedition to Alta California to establish Franciscan missions.

1770

After the 1769 founding of the San Diego mission, Serra travels north where he establishes the San Carlos mission.

1777

Serra founds his eighth mission in Alta California, Santa Clara, honoring St. Clare of Assisi

1784

Serra dies and is buried at the San Carlos mission in what is today Carmel, California.

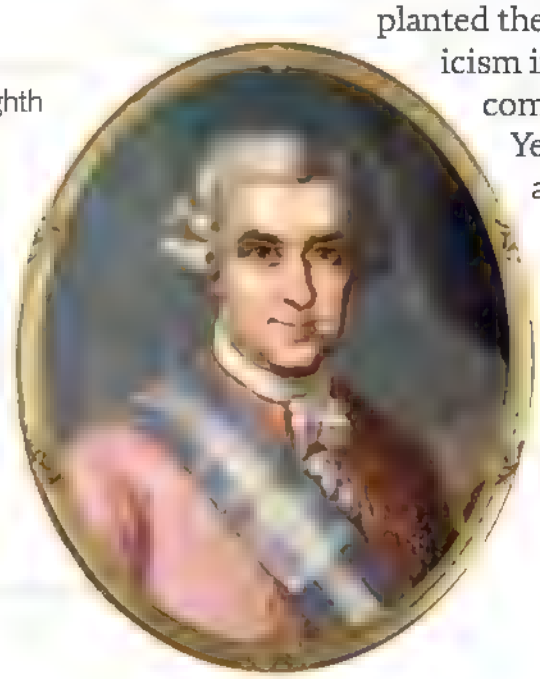
The state of California gave a bronze statue of Father Serra to Statuary Hall in the U.S. Capitol building in 1931. Father Serra established nine of the 21 missions that grew into thriving cities along California's coast, from San Diego to San Francisco. Two centuries earlier, Serra, on behalf of the Catholic Church and Spain, fervently sought to Christianize the native populations who lived there and to solidify Spain's imperial reach in North America. To expand this influence of the crown and church, Serra established a series of missions: villages for indigenous people to live, work, and worship under the leadership and authority of Spanish priests and soldiers.

Since 1931, Serra's legacy has become more complex and divisive. Some note that he helped lay the foundation for much of the Golden State's modern economy, including its agriculture and winemaking. To the faithful, he remains the "Apostle of California," a saint who planted the seeds of Catholicism in what would become American soil. Yet others view him as an oppressive colonial occupier whose efforts culminated in a demographic and cultural tragedy for Native Americans.

Mallorca to Mexico

He was born Miguel José Serra on November 24, 1713, in Petra, a small farming town on the Spanish island of Mallorca. Educated in his early childhood by Franciscan monks, he moved at age 15 to the nearby city of Palma to study for the priesthood. In September 1731 Serra officially joined the Franciscan order, taking the name Junípero after a friend of St. Francis. He taught theology until spring 1749, when he decided to join other Franciscan missionaries in part of New Spain (what is today Mexico).

After five months of study at the College of San Fernando in Mexico City, Serra left for Sierra Gorda, an isolated region to the north. It had been a site of missionary work since Spain's conquest two centuries before. In the near decade that Serra spent there, he developed the practices he would bring to his work in California. Agricultural productivity increased, and new churches were decorated with statues and paintings. Sacramental materials were built in the five missions he oversaw. But Serra's goals weren't only about embracing



José Gálvez tapped Serra to lead the Franciscans to New Spain's northern frontier.

JOSÉ GÁLVEZ, PORTRAIT. FRIAR JUNÍPERO SERRA MUSEUM, PETRA, MALLORCA
TONO BALAGUER/ALBUM

DIVISIVE LEGACY

JUNÍPERO SERRA was canonized, or made a saint, in a special mass in Washington, D.C., in September 2015. Pope Francis I praised the priest's efforts to "defend . . . and protect" the "dignity" of California's Native American population in the mid-1700s. Yet detractors—50 different Native American tribes among them—argued that Serra supported a colonial system that destroyed Native American cultures and decimated its populations. He was not, as some believe, a self-sacrificing pioneer who introduced Catholicism and European-style agriculture; he imposed them, they believe.

A STATUE OF JUNÍPERO SERRA IN FRONT OF MISSION SAN ANTONIO DE PADUA, CALIFORNIA
ALAMY IMAGES

Catholicism, producing enough food, or building beautiful structures. His daily regimen of prayer and labor sought another result: to further embed Catholicism and European-style agriculture within the local populations.

Serra returned to Mexico City in 1758, dividing his time between various roles at the College of San Fernando and months-long journeys into the countryside—"popular missions" that were as much performance as they were evangelical preaching. He also worked as a field agent for the Spanish Inquisition, investigating those people whose beliefs or actions the Catholic Church viewed as heretical and dangerous.

Going to California

Spanish inspector general José Gálvez led a reorganization of the missions in Baja California in the 1760s, where he felt the Jesuit missionaries had been unsuccessful in creating a profitable colony for the Spanish Empire. After King Charles III expelled all the Jesuits from Spain and its colonies in 1767, Franciscan missionaries, including Father Serra, took over the former Jesuit missions in Baja California.

Serra and Gálvez's solution to the problems facing the missions was similar to the Jesuits' unsuccessful implementation. The answer was straightforward: "All Indians should live in settlements, so that they might be instructed and civilized." Dismissive of their cultures, customs, and traditions, Serra viewed the Indians as children in need of protection, and his missions offered a safe haven from exploitation by Spanish colonists. But Baja California's arid

"PREACHING AND FARMING AT MISSION DOLORES" is a panel from American artist Anton Refregier's mural at the Rincon Center, San Francisco. Painted in the 1940s, the mural was controversial for its unflinching depiction of California history, including the relationship between Catholic missions and Native Americans.

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environment, while suitable for nomadic Indian hunter-gatherers, made European agricultural practices untenable; the Indians spoke many different languages, making it difficult for the missionaries to engage effectively; and epidemics of smallpox and measles brought by the Spaniards decimated Indian populations.

In 1768, the Spanish Crown offered Serra an opportunity that would ultimately lead to his fame, become his legacy, and introduce a period of unprecedented change for the native communities whose lands Spain would soon claim. Fearing Russian expansion down the Pacific coast, the Crown instructed Gálvez to claim and occupy what was then called Alta (Upper) California.

The first of three ships set sail from Baja California for San Diego in January 1769. Two months later, Serra began the 700-mile overland trip north. Stopping first in northern Baja California, he established his first mission, San Fernando de Velicatá.

He introduced the Cochimi Indians to the Franciscan priest and small group of soldiers who would "stay with them," departing his new mission a few days later. He arrived in San Diego on June 29 and founded the first Alta California mission on July 16. The trip had been an arduous one, but Serra remained jubilant and energized, believing that the Franciscans could win converts among the Kumeyaay Indians "without much difficulty" in a land "where no Christian foot had trod before."

The first months proved otherwise, however, as a group of 20 Kumeyaay attacked and set the mission on fire. But the mission march continued, and in March 1770, the expedition traveled north to Monterey, arriving in June. Again they

ALAMY/AC.

NINE MISSIONS

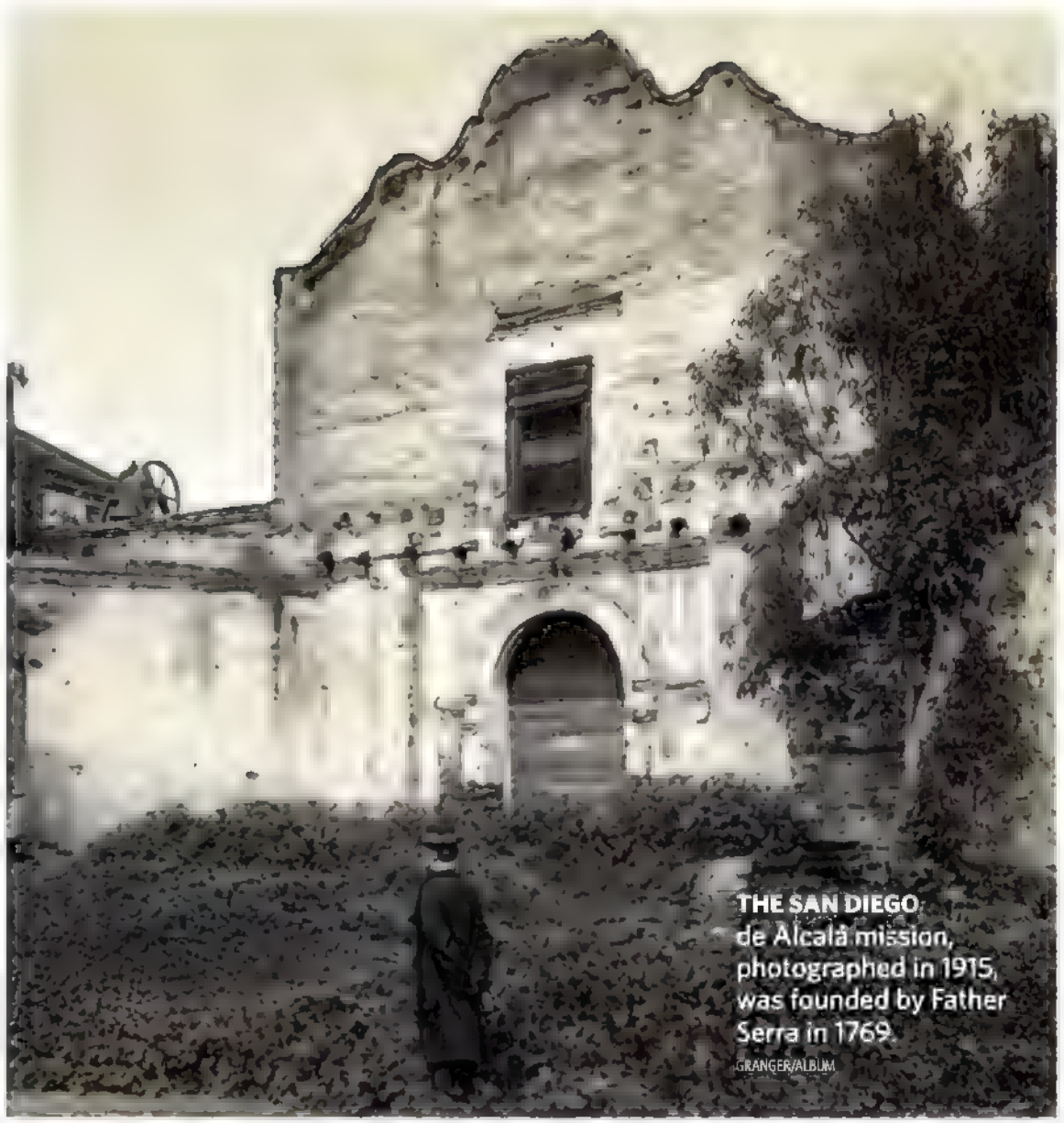
FATHER SERRA founded nine of California's missions. While in Monterey, Serra received a letter from the viceroy of Mexico urging him to organize an expedition to occupy the area of San Francisco Bay. The mission was founded on June 29, 1776, just five days before English colonists signed the Declaration of Independence.

A 1915 MAP SHOWS THE MISSIONS FOUNDED BY SERRA IN CALIFORNIA.

CALIFORNIA'S FIRST MISSION

IN HIS 1787 BIOGRAPHY of Father Junípero Serra, Spanish missionary Francisco Palóu recorded the founding of the San Diego mission on July 16, 1769: "[In order to] subject the barbarism of the people who live in this new California to the gentle yoke of our Holy faith . . . Father Junípero raised the Standard of the Holy Cross, putting it in the place that seemed most appropriate to him for the establishment of the settlement and in sight of that port."

RELIQUARY OF FATHER JUNÍPERO SERRA. NAT ONAL GALLERY OF ART, WASH NGTON, D.C.
ALBUM



THE SAN DIEGO de Alcalá mission, photographed in 1915, was founded by Father Serra in 1769.
GRANGER/ALBUM

quickly erected a small makeshift chapel and altar, Serra sang a mass, and—taking formal possession of the land for Spain—waved the royal flag over their second new mission, San Carlos Borromeo.

Throughout the 1770s, Serra continued to build his "ladder" of missions, as he called them, in California. He founded nine of them, but the church would establish 12 more. Believing that Native Americans could only become civilized under the direction of their Franciscan "padres," he faced continual disputes with Spanish officials regarding the division of authority between the soldiers and missionaries. In 1774 Spanish officials approved Serra's recommendations on mission governance, authorizing the priests to remove any Spanish soldier "who may set a bad example." But by the late 1770s and early 1780s, new laws placed a more secular focus on the missions, threatening Serra's evangelical vision.

On August 28, 1784, Serra died at the San Carlos mission. In 1821 Mexico won its independence from Spain, and California became a part of the new nation. In 1833 the Mexican government passed a law that secularized and ended the missions. Most Indians left, relocating to the countryside or to the villages of San José, Los Angeles, and Monterey. Most of the mission lands were not returned to them but instead became privately owned. By 1855, following the 1844 smallpox epidemic, the 1848 gold rush, and the establishment of California statehood in 1850, the population of California's Indian population had been reduced from about 300,000 in 1769 to about 50,000.

Changing Attitudes

The Catholic Church canonized Father Serra in 2015, a decision that revealed the mixed legacy of the missionary. Many Catholic Latinos supported Pope Francis I's decision, while many Native American groups did not. Three years later, officials at Stanford University, in Palo Alto, California, voted to remove Serra's name from two campus buildings and the university's mailing address. The Stanford committee noted that they had "no doubt about [Serra's] piety and good intentions," but that "the mission system pervasively mistreated" California's Native Americans.

Indeed, Serra—and perhaps the thousands of missionaries who arrived on North American shores determined to "civilize" millions of indigenous peoples—can embody both sides of that statement. Serra transplanted European institutions, cultures, and customs to create what he believed was a Christian refuge, but decimated a thriving and self-sufficient native population in the process.

—Grace Hill Smith

ART FOR THE AFTERLIFE

THE PHARAOH'S PAINTED TOMB

Discovered in 1817, the burial chambers of Seti I are adorned from beginning to end with some of the finest funerary art of all time, a New Kingdom masterpiece that set a standard for the great royal tombs that followed.

JOSÉ LULL

SACRED IMAGES
Myriad figures from the Book of Gates, a New Kingdom funerary text, line the far wall of Seti I's burial chamber. Opposite: Seti I is depicted in a colored relief in his tomb.

BOTH IMAGES: ARALDO DE LUCA

ROYAL ROW

Discovered by Giovanni Belzoni in 1817, Seti I's tomb (above) is situated between the tomb of his father, Ramses I (also discovered by Belzoni), and that of Ramses X, the penultimate ruler of the 20th dynasty.

TRAVEL PICTURES/ALAMY/ACI

Nestled among the entrance ways to the tombs of the Valley of the Kings is a structure known to scholars as KV17. Despite its unpoetic designation, this tomb makes the hearts of Egyptologists beat faster: Built for Seti I, who died in 1279 B.C., it was discovered in 1817, surprising excavators with its richly decorated walls depicting religious beliefs through images of the dead pharaoh and the deities of ancient Egypt.

The Valley of the Kings was the burial site of many rulers of Egypt's New Kingdom (circa 1539–1075 B.C.), when Egypt rose to new heights of power and influence. Building this great desert necropolis began during the reign of Thutmose I, third king of the 18th dynasty, whose rule marked the resurgence of Egypt following a long period of instability. A grand tomb was prepared for Thutmose, cut into the rock of the rugged desert valleys on the Nile's west bank. The remote spot was chosen to hide lavish royal burials from tomb raiders. Other New Kingdom rulers placed their tombs there, and the necropolis grew.

Despite attempts to hide their contents by the use of concealed passages, most tombs—

SETI'S VIBRANT TOMB

1817

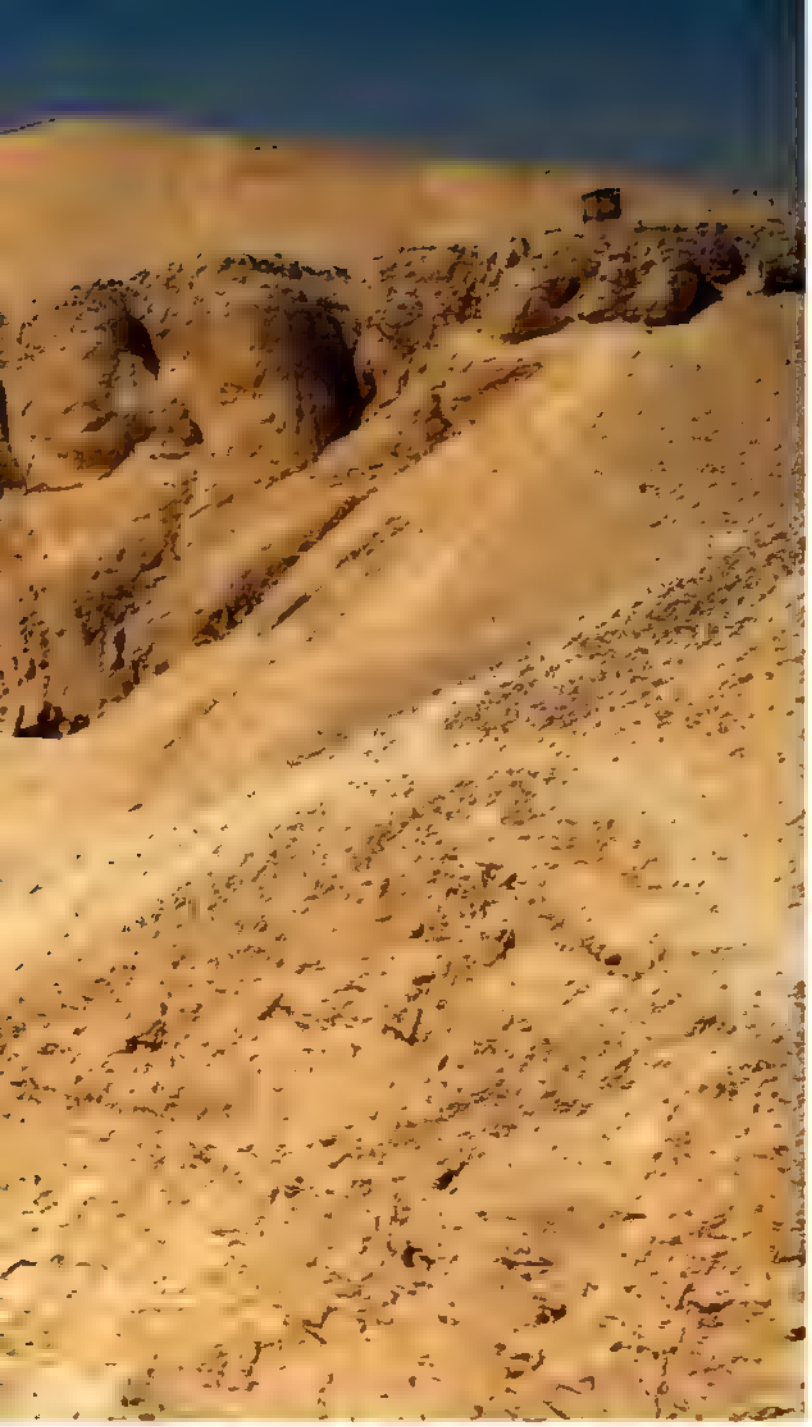
Giovanni Belzoni discovers the tomb of what will later be identified as that of 19th-dynasty pharaoh Seti I in the Valley of the Kings. In 1821 he allows the empty sarcophagus to be shipped to London.

BELZONI. REVERSE SIDE OF AN 1818 MEDAL. BRITISH MUSEUM, LONDON

SCALA, FLORENCE

1828

French scholar Jean François Champollion visits Egypt. His ability to decipher hieroglyphs identifies the tomb as belonging to Seti I, father of Ramses the Great.



Italian Adventurer

In the first century B.C., the historian Diodorus Siculus, described the Valley of the Kings as a ruin. The centuries were not kind to the site as both natural and human causes had further degraded the site. The sincere academic interest of French scholars following Napoleon's 1798 invasion of Egypt was matched by keen commercial interest in antiquities. In the early 1800s many objects across Egypt were pillaged for the European market.

When Italian adventurer and former circus strongman Giovanni Belzoni arrived in Egypt in 1815, the country was under British control. Belzoni's status, a combination of explorer and tomb robber, did not deter the British consul, Henry Salt, from using his services to help transport a massive head of Ramses II to Alexandria, from where it was shipped to the British Museum in London. Belzoni also became embroiled in a turf war with the French consul, who employed gangs of tomb raiders to track down antiquities.

As part of his campaign to best a French rival, Belzoni befriended local people near the Valley of the Kings who worked as tomb robbers. Thanks to their information, he became familiar with the site. Despite his mercenary streak, Belzoni was genuinely interested in archaeology. He studied the valley's topography and noted how fast draining rainwater could indicate hidden openings.

In winter 1816 Belzoni located the tomb of the 18th-dynasty pharaoh Ay. In October of the following year, his men discovered the tomb of Ramses I, with the famous exception of the tomb of Tutankhamun—were extensively looted, including Seti I's. However, even with the loss of its golden grave goods, Seti's tomb still had myriad treasures. The priceless art that adorns the walls remained intact to give modern scholars a vivid look into the intricate art that revealed Egyptian spirituality and funerary rituals surrounding the death of a king.

DEEP SOUTH
The Valley of the Kings lies on the west bank of the Nile River near the ancient Egyptian capital of Thebes, some 420 miles south of the modern Egyptian capital, Cairo.
NG MAPS

FAIENCE USHABTI FOUND IN THE TOMB OF SETI I. BRITISH MUSEUM, LONDON
SCALA, FLORENCE

1903
As the Antiquities Service's chief inspector of antiquities of Upper Egypt, Howard Carter carries out the first scientific archaeological exploration of Seti I's tomb.

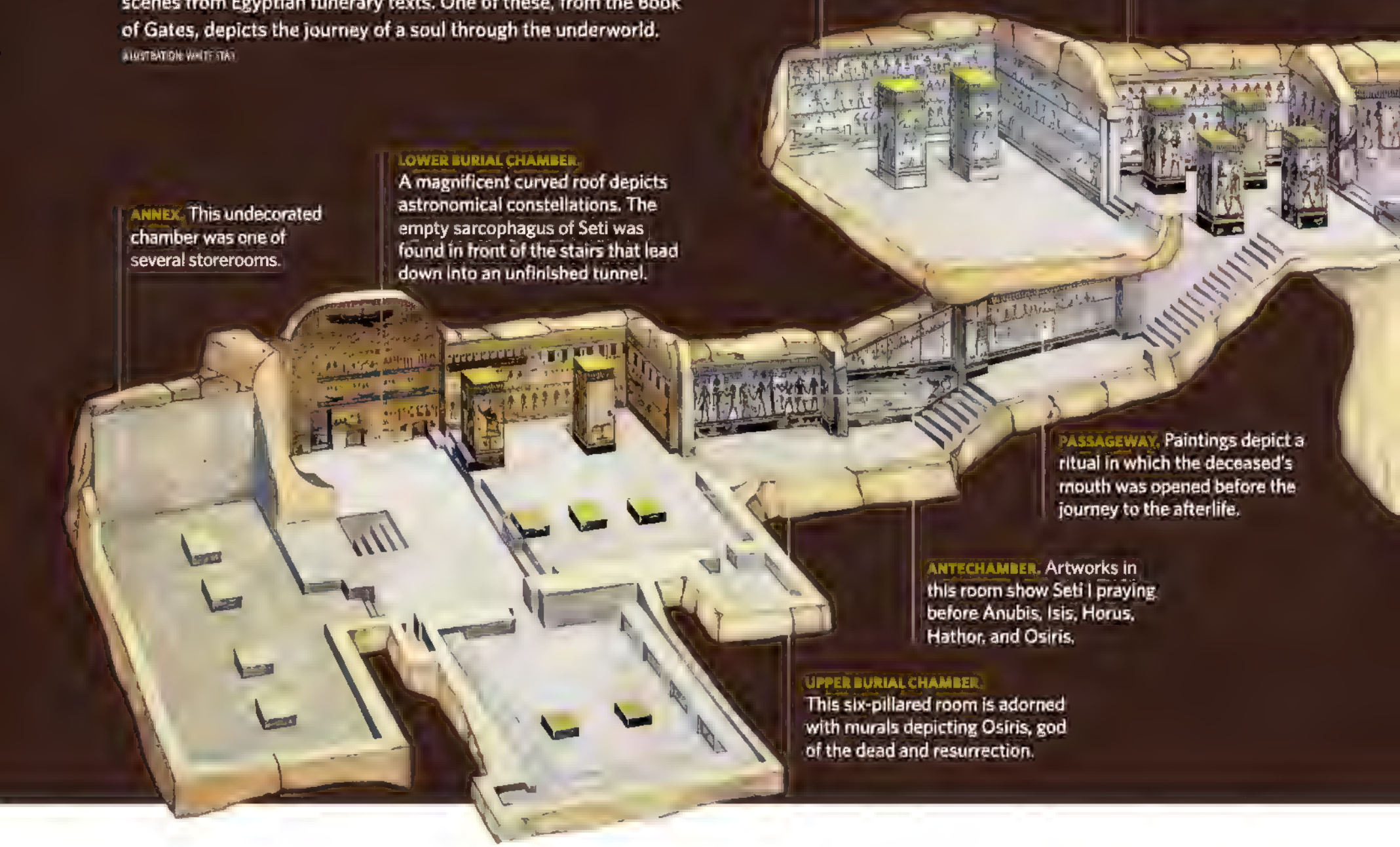
1979
Exploration of the tomb continues when the Theban Mapping Project maps Seti I's tomb. It will do so in 1996 and again in 2000.

2007
Egyptologist Zahi Hawass investigates the unexplored tunnel beneath Seti I's funerary chamber. In 2010 he reaches the end of the corridor, 570 feet long, which remained unfinished.

THE LONGEST TOMB

At 290 feet from entrance hall to burial chamber (and a farther 570 feet in the form of the tunnel at the end), Seti I's tomb (known as KV17) is the longest in the Valley of the Kings. It accommodates ritual features, such as the well chamber, and scenes from Egyptian funerary texts. One of these, from the Book of Gates, depicts the journey of a soul through the underworld.

ILUSTRATION: WHITE STAG


UNFINISHED CHAMBER. The walls of this two-pillared side chamber are covered with unfinished decorations from the Book of Amduat.
PILLARED CHAMBER. The start of the next stage of descent, this chamber is adorned with scenes from the Book of Gates funerary text.
LOWER BURIAL CHAMBER. A magnificent curved roof depicts astronomical constellations. The empty sarcophagus of Seti was found in front of the stairs that lead down into an unfinished tunnel.
ANNEX. This undecorated chamber was one of several storerooms.
PASSAGEWAY. Paintings depict a ritual in which the deceased's mouth was opened before the journey to the afterlife.
ANTECHAMBER. Artworks in this room show Seti I praying before Anubis, Isis, Horus, Hathor, and Osiris.
UPPER BURIAL CHAMBER. This six-pillared room is adorned with murals depicting Osiris, god of the dead and resurrection.

HOWARD CARTER IN A 1924 PORTRAIT CARTER CARRIED OUT A CAREFUL RE-EXCAVATION OF SETI I'S TOMB IN THE EARLY 1900S.

BRIDGEMAN/ACI

founder of the 19th dynasty. In the course of that discovery, Belzoni noticed another small hollow that easily absorbed rainwater, suggesting that a cavity lay beneath. On digging, his team found a rubble-filled entrance. Once the debris was cleared, they could glimpse magnificent wall decorations beyond.

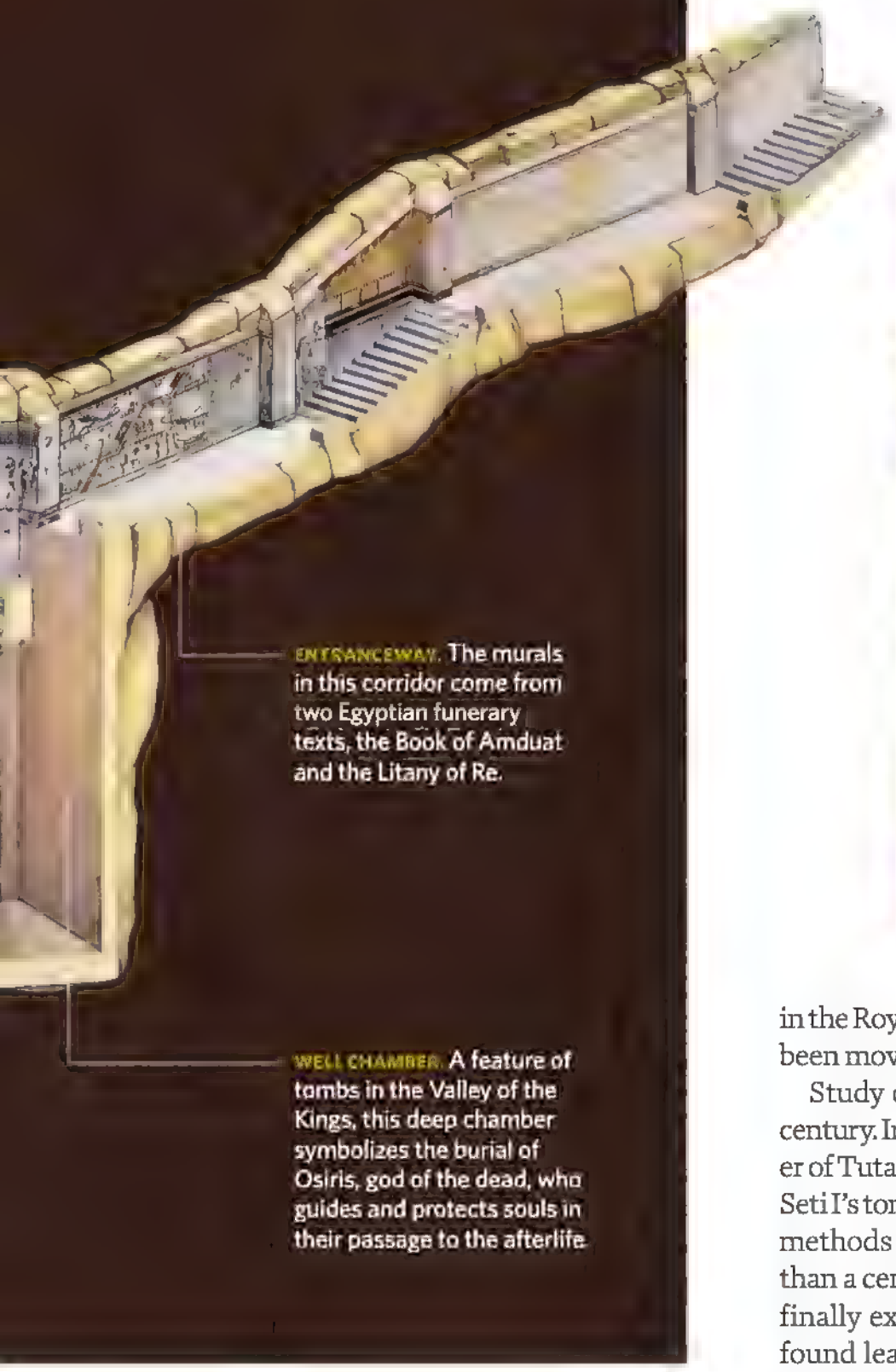
While exploring the tomb, Belzoni found an embalmed bull, leading him to believe the tomb was dedicated to Apis, the holy bull worshipped in northern Egypt. He did not identify the tomb as that of Seti I, or of any ruler, because nowhere in the tomb was there a human mummy.

Gallery of Wonders

Despite his ignorance as to the identity of the tomb's original occupant, Belzoni recognized that the paintings adorning the interior were exceptional. In the months following the discovery, Belzoni took wax impressions of them, which damaged the reliefs. He also painted watercolors of the tomb art.

When Belzoni reached the burial chamber whose magnificent painted ceiling represents the heavens, he found an empty alabaster sarcophagus. The coffin was found laying across a staircase that led down to a long and mysterious corridor, which Belzoni's men gave up exploring after a hundred yards. The sarcophagus was removed from the tomb and eventually acquired by the English collector Sir John Soane (today it is in London, England, in the museum that bears Soane's name).

Not only were the tomb's artworks breathtaking to see, they also provided today's Egyptolo-


ENTRANCEWAY. The murals in this corridor come from two Egyptian funerary texts, the Book of Amduat and the Litany of Re.
WELL CHAMBER. A feature of tombs in the Valley of the Kings, this deep chamber symbolizes the burial of Osiris, god of the dead, who guides and protects souls in their passage to the afterlife.

DEATH VALLEY

In the Valley of the Kings (above), the most famous tomb, that of King Tutankhamun, can be found between Seti I (center) and his son, Ramses II "the great" (upper left).

EOSGIS.COM/NG MAPS

gists with the earliest, most complete set of funerary texts from ancient Egypt. Wall paintings depict detailed scenes from the Book of Amduat and texts from the Litany of Re, a collection of invocations and prayers to the solar deity. The giant sarcophagus is decorated with scenes from the Book of Gates—an Egyptian text that recounts the passage of a soul through the underworld—and is today regarded as one of the most important artifacts from Egypt's 19th dynasty.

For years after the discovery, the tomb would be identified with various rulers. But in 1828 French scholar Jean-François Champollion deciphered hieroglyphics in the tomb to identify it as that of Seti I. One of the 19th dynasty's greatest rulers, and father of Ramses II, Seti I ruled for 11 years during which he expanded Egypt's influence south to Nubia and northeast to Syria. Archaeologists would later find the king's mummy in the Royal Mummy Cache nearby, where it had been moved in antiquity for safekeeping.

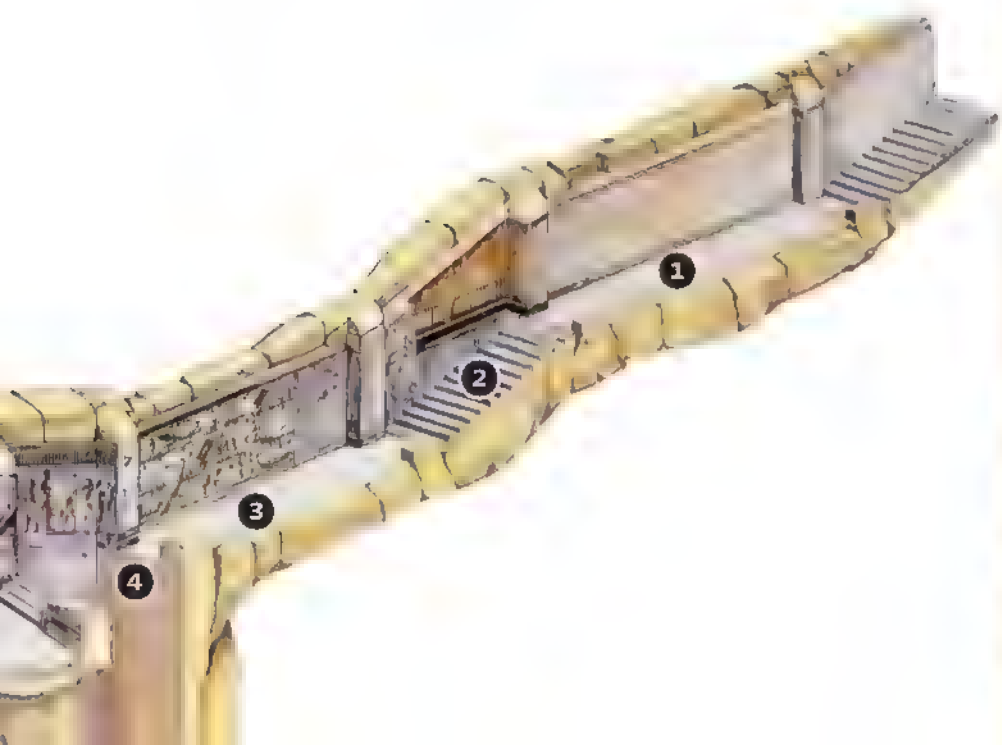
Study of the tomb continued into the next century. In 1903 Howard Carter, future discoverer of Tutankhamun's tomb in 1922, re-excavated Seti I's tomb using meticulous care and scholarly methods to record the tomb's contents. More than a century later, Egyptologist Zahi Hawass finally excavated the tunnel that Belzoni had found leading downward from the sepulchral chamber. He discovered that it ends abruptly after 570 feet, and concluded it may have been intended to link the burial chamber with the realm of the dead.

Since Belzoni's first excavation, exposure to the elements and human visitors have damaged Seti's tomb, but conservation efforts strive to protect and preserve it. In 2016 the Factum Foundation used the latest technology to scan and photograph the entire complex not only to preserve and study its artworks, but also to create high-precision facsimiles that can be printed to erect full-size models of the tomb in full color. Visitors can experience the majesty of a pharaoh's resting place without endangering the original. The excavation of the tomb is largely complete, but its aura of enigma will linger, it seems, for centuries to come.

AN EXPERT ON ANC ENT EGYPT'S LATE DYNAST ES, JOSÉ LULL IS A SEN OR LECTURER AT THE AJTONOMOJS UN.VERSITY OF BARCELONA, SPAIN

THE FIRST STEPS

THE ENTRANCE TO SETI I'S TOMB leads to a series of preliminary corridors and chambers. The walls in these opening chambers are covered with myriad artworks (in the form of colored reliefs) depicting funerary texts centering on the sun god Re. One of these is the New Kingdom Book of Amduat, showing the journey taken each night by Re. Over the course of 12 hours, he must overcome obstacles using the magical texts shown on the walls. The walls also feature texts from the Litany of Re, a collection of invocations and prayers to the solar deity. Visitors descend a set of stairs and then proceed through three corridors. ① In the first room, Seti I can be seen greeting the god Re-Horakhty in a scene from the Litany of Re, which associates the deceased pharaoh with the various forms of the sun god. A succession of vultures representing the goddess Nekhbet appear on the ceiling against a starry background. Images from the Litany also appear in ② the second stairway and depict Re in different forms. ③ The next corridor depicts different stages of Re's nightly journey on the left and right walls, as recounted in the Book of Amduat. A visitor's journey then pauses at ④ the well chamber, which symbolizes the burial of Osiris, god of the underworld. Artworks here show gods welcoming the deceased pharaoh.



HAZARDOUS JOURNEY
Serpents slither in a scene from a funerary text, the Book of Amduat, painted on the walls of the preliminary passageway of Seti I's tomb.

ARALDO DE LUCA

Principal entrance to Seti's tomb in the Valley of the Kings

ALAMY/AGE

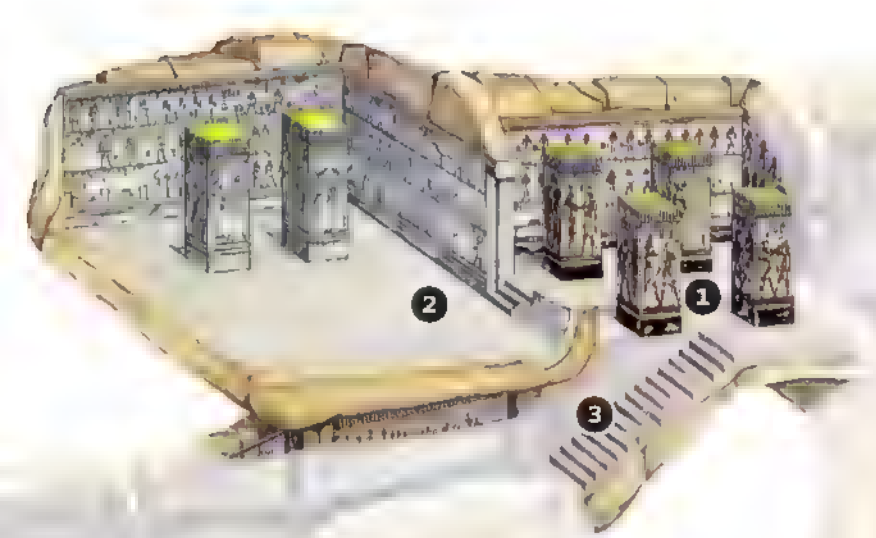
EVERYTHING UNDER THE SUN

Artworks in this opening section of the tomb represent two texts that both center on Re, the sun deity. The Book of Amduat portrays stages of Re's nightly journey through the underworld. This 12-hour period poses different obstacles and dangers for Re to overcome (and echoes the similar hazardous journey undertaken by the deceased through the underworld in the Book of Gates, scenes from which are depicted in later sections of the tomb). The other text is the Litany of Re. This New Kingdom composition is a guide to the different manifestations of Re, and equates Re with the deceased pharaoh. Seti's was not the first tomb to incorporate hieroglyphics from the Litany of Re, but their inclusion into the primary corridors of the tomb set a standard that was copied by later royal tombs in the Valley of the Kings.

2

PILLARS OF THE GODS

AFTER THE WELL OF OSIRIS, visitors pass into ① a room supported by four richly adorned pillars. Whereas the preliminary corridors and chambers centered on the role of the solar god Re, this space marks a shift in tone to a type of art that historians term "chthonic" (related to the underworld). The artwork in this room depicts scenes from the Book of Gates, a funerary text that recounts the deceased's journey through the underworld, in which each hour of the night is marked by a heavily guarded gate. Although the Book of Gates may predate the New Kingdom, its first usage in a royal tomb is found in the funerary chamber of Horemheb, the last pharaoh of the 18th dynasty. In the scenes shown here, the soul is the deceased Seti I himself, portrayed on each side of the four pillars with a divinity: the falcon-headed Horus (center) and the blue-skinned Ptah (right). On the rear wall of the chamber, Seti is welcomed by Osiris, god of the underworld (left). A door (not visible here) leads to ② a two-pillared side chamber whose walls are covered with unfinished decorations. Illustrations were sketched out in great detail, but color had not been added when Seti I was entombed. ③ Stairs proceed down to the lower levels of the tomb to continue the journey toward the burial chamber.



UNFINISHED WORK

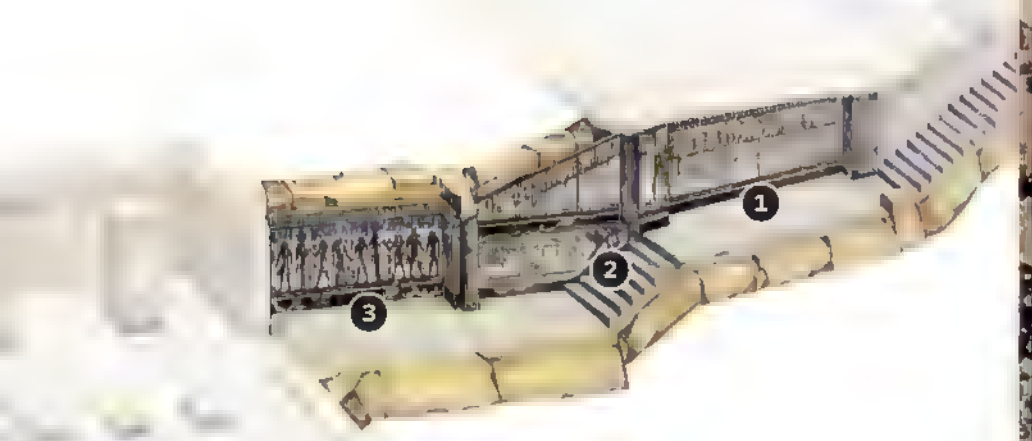
The decoration in the two-pillared side chamber was made with black ink on white plaster walls. No color has been added, as the artwork was probably left unfinished on Seti's death. The sketches depict scenes from the Book of Amduat, including one (above) in which Maat, the goddess of order and justice (right), offers an ankh, a symbol of rebirth, to the deceased Seti (left).

ARALDO DE LUCA

3

CLOSER TO THE AFTERLIFE

DESCENDING THE STAIRS from the pillared chamber, visitors reach another ① corridor with walls that show Seti I standing in front of an offering table. Artworks on the left wall show a set of texts and images connected with the Opening of the Mouth ritual, a ceremony in which a series of ritual tools are applied to a likeness of the deceased to enable them to regain the faculties of a living, speaking, and eating being in the afterlife. The ceremony has its roots in the Old Kingdom, but its depiction in tomb art is rare. Only one other royal New Kingdom tomb—that of 19th-dynasty Queen Tawosret—has extensive depictions of it. A passageway begins with stairs and wall paintings of protective winged serpents before entering ② a room decorated with more scenes of the Opening of the Mouth and excerpts from the Litany of the Eye of Horus. This funerary text allowed the deceased to partake in a series of offerings to the god. ③ An antechamber follows, with breathtaking paintings of the starry sky on the ceiling. The polychrome wall paintings were greatly damaged by Belzoni, who made direct copies of the colored reliefs using wax molds.



ACCOMPANIED BY THE GODS

[illegible] divinities [illegible] this [illegible] The pharaoh [illegible] accompanied by [illegible] and Anubis, the god of death and [illegible] [illegible] with the head of a dog. [illegible]

4

THE BURIAL CHAMBERS

AFTER THE ANTECHAMBER comes the splendor of the burial complex itself, which would have housed the pharaoh's mummy. Following the precedent established in the tomb of Amenhotep II a century before, the room is divided into two sections: ① an upper chamber, originally supported by six richly adorned pillars, and ② a lower chamber with a high, vaulted ceiling painted with stunning depictions of Egyptian deities. At 20 feet high, the curved structure symbolizes the celestial vault, and a series of gods and goddesses can be seen proceeding toward symbols of constellations painted in the form of animals. The walls are decorated with scenes from the Book of Amduat. Presiding from the highest point on the rear wall, ③ the goddess Isis spreads her wings. It was here, under this beautiful vaulted ceiling, that Belzoni found Seti's empty alabaster sarcophagus. Some theorize that ancient looters left it behind because its bulk made it nearly impossible to move. Perplexing archaeologists for nearly two centuries is ④ the long, uncompleted tunnel that stretches downward (Egyptologist Zahi Hawass excavated it in the 2000s and found that it went to nowhere). Many scholars believe the long descending tunnel was meant to link Seti's earthly resting place with the realm of the dead far below.

UNDER THE HEAVENS

The upper burial chamber opens onto the spectacle of Seti's lower burial chamber. Deities and constellations stand out against the rich blue background of its curved ceiling, representing the vault of the heavens.

ARALDO DE LUCA

LEFT BEHIND

The translucent alabaster coffin (left), discovered by Giovanni Belzoni, was removed from the tomb and taken to London in the early 1820s. Belzoni's patron, the British consul Henry Salt, wanted to sell it to the British Museum, but the £2,000 asking price was considered too high. The English collector Sir John Sloane bought the sarcophagus, and it became the most celebrated piece in his collection. The sarcophagus features carved hieroglyphics from the Book of Gates.

SCALA, FLORENCE

The mummy of Seti I (left) was removed from the tomb in antiquity and hidden nearby for safekeeping. It was discovered in 1881. Egyptian Museum, Cairo

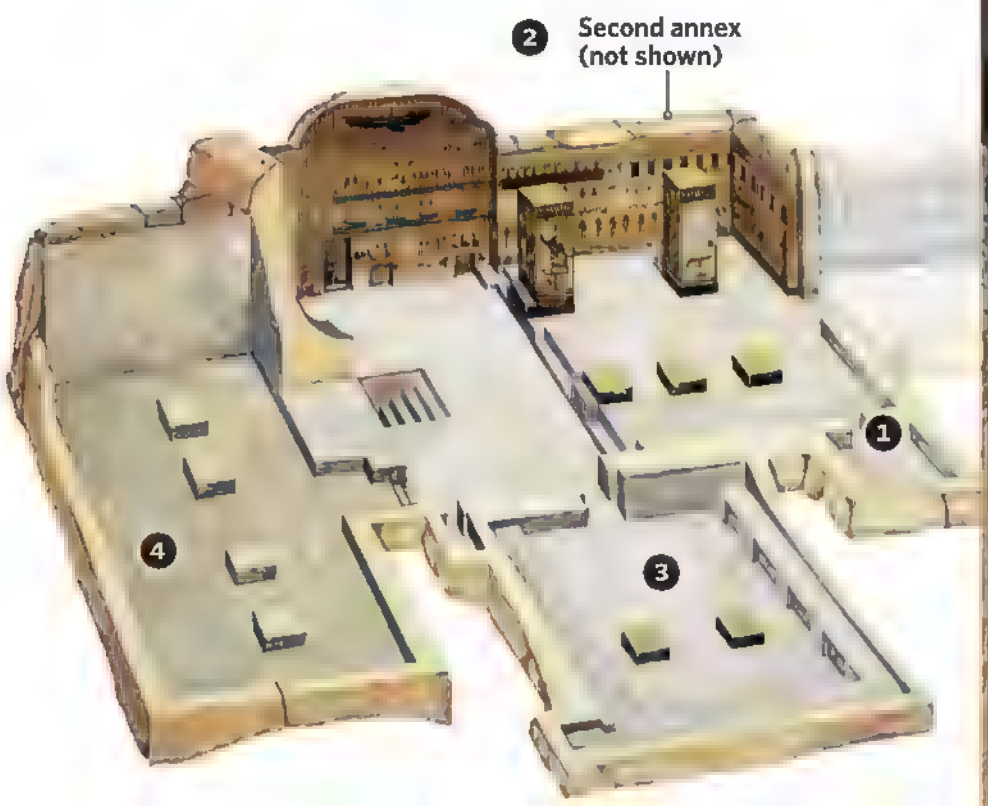
ARALDO DE LUCA

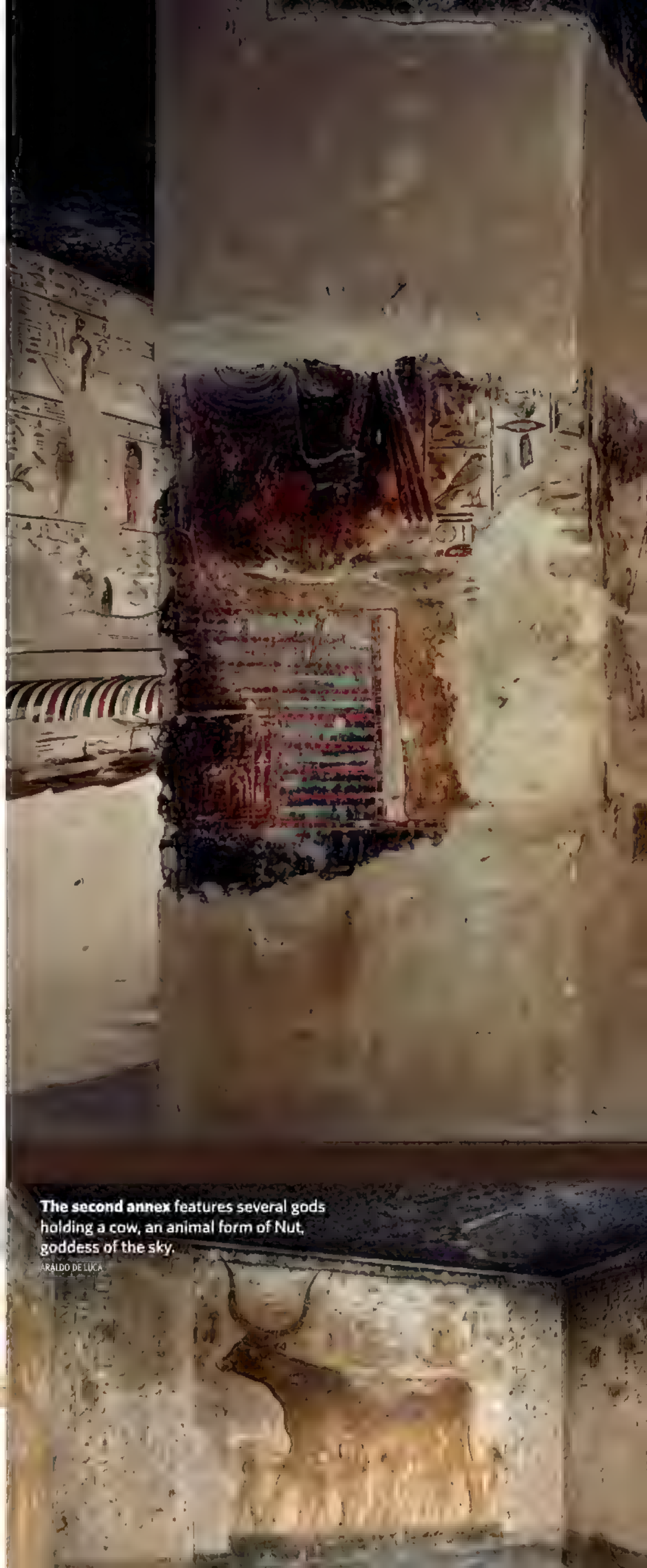
HEAVENS ABOVE
The vaulted ceiling of Seti I's lower burial chamber represents the firmament and the stars within it. Different constellations from the night sky—including Ursa Major, which is a bull in ancient Egyptian cosmology (right)—appear positioned between processions of the gods.
ARALDO DE LUCA

5

STOREHOUSES OF THE DEAD

THE UPPER BURIAL CHAMBER has two small side annexes. When Howard Carter discovered the largely intact tomb of Tutankhamun in 1922, he found annexes there that served as storage for the afterlife. They were filled with pottery, games, and even food. The annex contents of Seti's tomb may have contained similar objects that were probably looted long ago. ① The first storeroom is decorated with scenes from the Book of Gates, while ② a twin annex (not shown below) directly opposite shows scenes from the Book of the Heavenly Cow, which recounts how the goddess Nut ascended to create the celestial vault. According to the story, when the height made her teeter, she had to be supported by several divinities. The lower burial chamber also has two annexes. ③ A square chamber's two supporting pillars are covered with figures, including the deceased pharaoh, associated with the god Osiris, and more images from the Book of Amduat. ④ At the rear of the complex is another undecorated storeroom. Here Belzoni found the mummified bull and numerous ushabtis, figurines made of wood and faience that would serve the deceased in the afterlife.





The second annex features several gods holding a cow, an animal form of Nut, goddess of the sky.

ARALDO DE LUCA

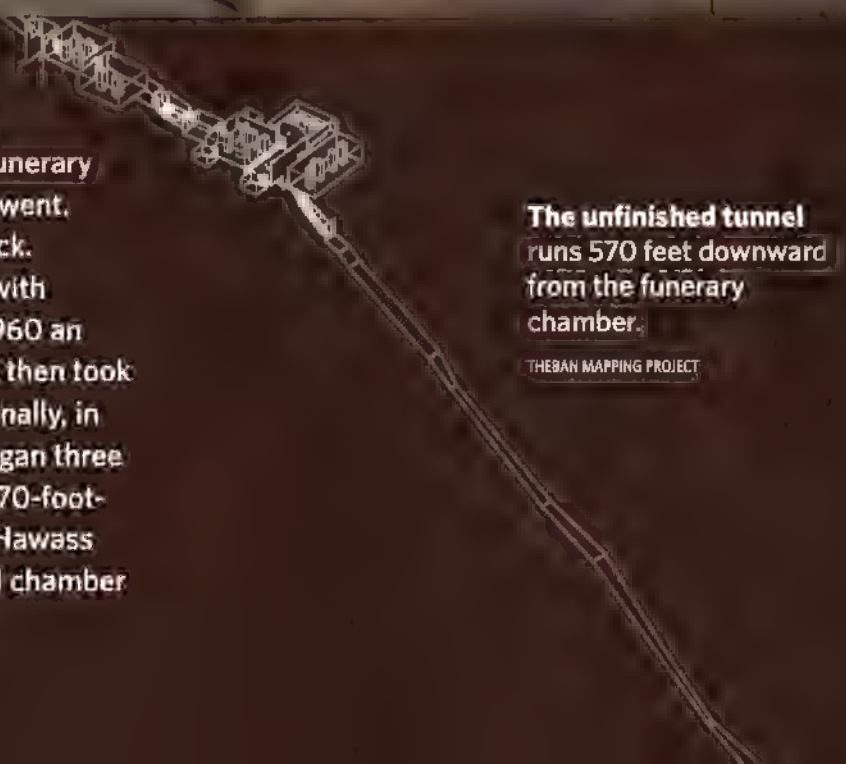
RULER OF THE DEAD

[illegible] a blue-colored *atef* crown [illegible] god Osiris, sovereign of the underworld, sits on a throne in the [illegible]. He wears a beard and holds a flail, both symbols of royalty.

[illegible]

TUNNEL TO THE UNDERWORLD

A mysterious long passageway leads downward from Seti I's funerary chambers, and for nearly two centuries, no one knew where it went. In 1817 Belzoni followed it for some distance before turning back. Speculation mounted that the tunnel, its lower sections filled with rubble, might hide the "real" resting place of the pharaoh. In 1960 an amateur local archaeologist cleared an additional 100 feet but then took a wrong turn and lost the course of the original passageway. Finally, in 2007, a team led by Egyptian antiquities chief Zahi Hawass began three years of careful rubble-clearing. In 2010 they discovered the 570-foot-long tunnel came to an abrupt end with no further chambers. Hawass believes the corridor may have been intended to link the burial chamber to the underworld, but it was left unfinished when Seti I died.



The unfinished tunnel runs 570 feet downward from the funerary chamber.

THEBAN MAPPING PROJECT

THE REAL AMAZONS

Tales of fierce women who lived and fought like men thrilled ancient Greek audiences. Today, archaeological evidence proves that Amazons were real and based on the Greeks' encounters with Scythian women, mounted warriors of the steppes.

ADRIENNE MAYOR

MORTAL COMBAT

An Amazon and a Greek engage in mortal combat on this second-century A.D. Roman sarcophagus. Louvre Museum, Paris

SCALA/ART RESOURCE, NY

The Amazons of Greek mythology, were fierce warrior women dwelling in the lands around and beyond the Black Sea. The greatest Greek heroes proved their valor by overcoming formidable Amazon queens in several famous myths. In one, Theseus, mythic founder of Athens, fought and defeated the Amazon Antiope. Heracles set out on his ninth labor with orders to obtain the war belt of the Amazon queen Hippolyte. In the legendary Trojan War, the champion Greek warrior Achilles and the bold Amazon Penthesilea were locked in hand-to-hand combat on the battlefield.

Known to the Greeks as the "equals of men," the Amazons were said to be as courageous and skilled in war as men. In Greek art and literature, Amazons were invariably depicted as brave and beautiful, but always armed and dangerous. By the time Homer wrote *The Iliad* (around 700 B.C.), every Greek man, woman, boy, and girl knew exciting Amazon tales.

Greek artists created myriad images of Amazons wearing pants, riding horses, shooting bows, swinging battle-axes, hurling spears, and fighting and dying heroically. Amazons were popular subjects on privately commissioned pottery as well as on public sculptures. Vivid scenes of women warriors in battle decorated buildings and temples. To the lover of Greek myths, the Amazons might seem as imaginary as the hydra or Pegasus, but archaeologists are finding compelling evidence for the existence of ancient warrior women.

SCYTHIAN LANDS

Scythian culture extended from Eurasia across the steppes to Siberia and Mongolia. Encounters between Greek colonists on the Black Sea and Scythian nomads led to myths featuring the Amazons.

NG MAPS

Eastern Origins

Recent archaeological discoveries of graves from the fifth century B.C. suggest that the Greeks' tales of Amazons were influenced by the lives of real equestrian nomads of Eurasia. In the Greek myths, Amazons enjoyed a vigorous outdoor life, sexual freedom, hunting, and warfare. Notably, these same characteristics could be observed among the peoples that roamed Scythia, the ancient Greek name for the vast territory stretching from the Black Sea east to Mongolia. The Scythians who occupied these lands were nomads, who appear as early as the ninth century B.C. Their culture spread across Asia, from the lands of Ukraine to those of Siberia. The Greeks first encountered Scythians, whose lives centered on horse riding and archery, in the seventh century B.C. when Greeks began to establish colonies around the Black Sea.

TALES OF VALOR

8TH CENTURY B.C.
In a work in which women are otherwise portrayed as weak, Homer's epic poem *The Iliad* refers to the Amazons as "women who are the equals of men."

CIRCA 7TH CENTURY B.C.
A post-Homeric account of Troy, the *Aethiopis*, features the Amazon queen Penthesilea. She sides with the Trojans and is killed by Achilles.

5TH CENTURY B.C.
In his *Histories*, which often blends fact and fiction, Herodotus recounts how Amazon women and Scythian men paired up and enjoyed sexual equality.

SPLENDOR ON THE STEPPE

Adorned with gold, a Scythian queen and her husband survey their herd in a painting by U.S. artist Donato Giancola (above).

DONATO G ANCOLA, NATIONA. GEOGRAPHIC IMAGE CO..ECT ON

As Greek knowledge of Scythia expanded, descriptions and images of Amazons in art and literature took on more realistic details, reflecting the actual customs and attire of steppe nomads, including their horses and weapons. By about 450 B.C., Herodotus and other writers were describing how women of Scythia fought alongside men on horseback, like the Amazons of myth. Ancient Greek and Roman historians reported that Cyrus of Persia, Alexander the Great, and Rome's general Pompey encountered Amazon-like women in eastern lands.

The archaeological evidence from Scythian graves reveals a level of sexual equality that would have astonished the Greeks. In Greece, wives and daughters were usually kept indoors weaving and minding children. In contrast, the nomadic horsemen and women lived a rugged life in a harsh landscape. The tribes were always on the move, finding new pastures for horses, hunting, raiding, and battling hostile tribes. Every member, male and female, young and old, contributed to defending the group and ensuring survival. It was not only logical but necessary to train the girls as well as the boys to ride, shoot arrows, hunt, and fight. This lifestyle encouraged equality. For the nomads, the great equalizer for women was the crucial combination of horses with archery. Astride a fast horse, a woman with a bow is as deadly as a man.

The egalitarian lifestyle of the Scythians was very different from the settled, agricultural lifestyle of the Greeks. The fact that women could be the equals of men aroused ambivalence. The idea was both exhilarating and daunting, inspiring an outpouring of thrilling stories about barbarian women who were as brave and skilled in war as

4TH CENTURY, B.C.

In his *Laws*, Plato proposes girls and boys receive the same instruction in combat, inspired by tales of Amazons, and the example of real-life Scythian women.

GOLD COMB TOPPED WITH SCYTHIAN FIGHTERS. EARLY FOURTH CENTURY B.C. HERMITAGE MUSEUM, ST. PETERSBURG, RUSSIA
AKG/ALB..M

AMAZON ARCHAEOLOGY

EVIDENCE that genuine warrior women existed in the regions where ancient Greeks located the Amazons has been mounting for years. In late 2019 researchers from Russia's Institute of Archaeology made a landmark discovery in the Voronezh province in western Russia: a burial containing four female Scythian fighters, ranging in age from about 13 to late 40s, who fought, lived, and died on the steppe of western Russia some 2,300 years ago. Parts of the tomb had been looted, but the burials of two women were intact. One appeared to have died in her mid-20s. Her body was buried with her legs bowed, in the position of a horsewoman, with two spears alongside. Also intact was the body of the oldest woman, whose skull still was adorned with a ceremonial headdress known as a *calathos*. The burials of 11 other armed women dating to the same era have been found in the region in the past decade. Each one has borne signs of having received the same funerary rites as men.

A SCYTHIAN FEMALE SKULL WAS STILL ADORNED WITH A CEREMONIAL HEADDRESS *(CALATHOS)* WHEN FOUND IN VORONEZH, WESTERN RUSSIA.

INSTITUTE OF ARCHAEOLOGY RAS

men. In their myths about the bold Amazons, it seems that the Greeks allowed themselves a secure space to explore the idea of equality between the sexes, an impossible dream in their own paternalistic society where men dominated and controlled women.

Bones and Burials

Scientific advances in the study of human remains have deepened the study of the Scythians and revealed a much more nuanced view of their culture and burial practices. Early excavations of Scythian burial mounds, known as kurgans, in the 1940s revealed skeletons buried with spears, axes, arrows, and horses. These remains were previously identified as male, but decades later the advent of DNA-testing has revealed that not all the remains belonged to men. Many of them were women.

About one-third of Scythian women found in burials to date have been discovered with

weapons. Their bones bear the marks of combat injuries: slashed ribs, fractured skulls, and broken arms. In 2017 archaeologists found a female skeleton in Armenia with an arrowhead in her femur, and evidence of other injuries consistent with warfare.

Recent discoveries have further strengthened the theory that female warriors among Scythian and other steppe cultures played a role in the Greek myths of Amazons. In late 2019 archaeologists working in the Voronezh province of Russia discovered a tomb containing the bodies of four women. The youngest was in her early teens, and the oldest in her mid- to late 40s. The oldest was buried with weapons and an elaborate headdress. Another woman, in her 20s, was buried in the position of a horse rider. Analysis suggests the remains are those of people who lived in the fourth century B.C. The site in western Russia is within the territory where Greeks could have encountered Scythians.

The new finds debunk older theories as to how the stories of Amazons arose in Greek culture. One theory proposed that imagination alone brought Amazons into existence just so they could be killed off by Greek heroes. Others insisted that the myths display a hatred and fear of women, who must be crushed by men. In this old argument, Amazons only existed in myth to be defeated, and heroic warrior status was impossible for women.

It is true that in Greek myths, the foreign Amazons were always defeated by Greek heroes—after all, Greeks wanted to hear stories about their champions as ultimate victors. But

BATTLE OF THE SEXES

Amazons fight Greeks on a terra-cotta *lekythos* (oil flask) from the fifth century B.C. Amazon battle scenes, known as Amazonomachy, were popular in ancient Greek art. Metropolitan Museum, New York

MET/SCALA, FLORENCE

SCYTHIAN WOMEN HAVE BEEN DISCOVERED BURIED WITH WEAPONS. THEIR BONES BEAR THE MARKS OF COMBAT INJURIES: SLASHED RIBS, FRACTURED SKULLS, AND BROKEN ARMS.

WOUNDED WARRIORS

THE GREEKS surrounded themselves with images of powerful Amazons in battle scenes on painted pottery and temple friezes, but these female figures were also popular with sculptors. Writing in the first century A.D., the Roman writer Pliny the Elder described a competition between Greek sculptors in the mid-fifth century B.C. Charged with creating an Amazon statue for the temple of Artemis at Ephesus, they created bronze statues of Amazons in various poses. "Wounded Amazon" statues were especially popular. They depict an injured female warrior who has retreated from battle. In the example shown above, her quiver hangs useless under one arm. Her chiton, fastened at one shoulder, falls, exposing both breasts. Despite her fate, her expression does not betray suffering or anguish, which would likely have impressed Greeks for its courage and stoicism.

WOUNDED AMAZON. COPY OF A SCULPTURE BY THE FIFTH-CENTURY B.C. SCULPTOR KRESILAS. VATICAN MUSEUMS
SCALA, FLORENCE

in every myth, the Amazons were portrayed as the heroes' match in valor and prowess. Heroes seeking glory need powerful adversaries to overcome. There would be no honor in killing a weak foe. Accordingly, Greek vase paintings of the battles with Amazons are filled with suspense. The Amazons fight and die courageously, and some even kill Greek warriors.

Facts and Fictions

Just as archaeology has shown that Amazons were not pure fantasy, other mistaken ideas about Amazons can also be discarded. One of the most famous "customs" of the Amazons was that they supposedly cut off one breast in order to be able to draw a bow, a fake "fact" that has been perpetuated for more than 2,500 years.

The claim first emerged in 490 B.C., when the patriotic Greek historian Hellanicus tried to fabricate a Greek meaning for the foreign word *Amazon*. "Amazon" was not a Greek term, but "mazon" sounded something like the word for breast and *a* meant "without" in Greek. So Hellanicus proposed that the name meant that Amazons removed a breast so they could draw a bow. Not only was his claim rejected by other Greeks of his own day, but no ancient artist ever accepted the notion. All Amazons in Greek and Roman art appear with both breasts intact. And in practice, female archers are not hindered by their breasts.

Another persistent belief broadcast by the ancient Greeks was that Amazons were a tribe of man-hating, domineering women who enslaved men and mutilated, killed, or rejected baby boys. This idea likely arose because Greek men oppressed their own women. By their logic, if women were strong and independent, then the men must be weaklings forced into submission. Some sources, however, extoll the Amazons: Homer used a term for Amazons that translates as "the equals of men." And many Greek poets called the warrior women "man-lovers."

Some modern scholars suggest that Amazons were women who gave up motherhood in order to become warriors. This notion is undermined by the Greek lists of Amazon generations, all traced by matrilineal lines. Moreover, the Greeks described the warlike Amazons nourishing their babies with mares' milk. The "no Amazon mothers" fallacy is further disproved by the graves of

FIGHTING DIRTY

Battles scenes featuring Amazons often show a male soldier grabbing his opponent's hair, such as the scene depicted on a Roman plaque relief (a second-century A.D. copy of an older Greek original). Archaeological Museum of Piraeus, Athens

SCALA, FLORENCE

FROM THE BATTLE TO THE GRAVE

IN THE 1940S archaeologists studying Scythian sites in Ukraine, south Russia, Caucasia, and Central Asia excavated grave mounds called kurgans. When they found human remains accompanied by weapons, they assumed the deceased must be male. The advent of DNA-testing has proven those assumptions wrong. About 300 skeletons, some battle-scarred, have been identified as female; like Scythian men, these women were buried with their quivers of arrows, battle-axes, spears, and horses. Further studies of Scythian culture revealed an egalitarian way of life. As part of a nomadic tribe of mounted archers, all the children—both sons and daughters—would be taught to ride horses and shoot arrows from a young age. Regardless of gender, Scythians donned similar clothing too. Everyone dressed in tunics and pants, making it easier for all people to hunt and ride.

A SIXTH-CENTURY B.C. PLATE PAINTED IN THE ATTIC STYLE BY EPICTETUS DEPICTS AN AMAZON OR FEMALE SCYTHIAN ARCHER.
BRITISH MUSEUM/SCALA, FLORENCE

nomadic horsewomen–archers whose real lives inspired the Greek Amazon stories 2,500 years ago. Next to the skeletons of female warriors buried with their weapons, archaeologists have discovered infants and children. Warrior women were definitely also mothers.

Finally, many modern scholars assume that Amazons were a purely Greek invention. But research reveals that the warrior women of the vast steppes of Central Asia also influenced other ancient cultures who came in contact with Scythian nomads. Adventurous tales and historical accounts of Amazon-like warrior women appeared in Egypt, Persia, Caucasia, Central Asia, India, and even China.

Egalitarian Ideals

Study of Greek literature from the classical period further supports the idea that Amazons were based in part on real people. The fifth-century B.C. historian Herodotus, the first-

century B.C. geographer Strabo, and others had no doubt that Amazon-like women really existed, and associated them with the flesh-and-blood warrior women of Scythia. In his *Histories,* Herodotus explained how a group of shipwrecked Amazons take local male Scythians as lovers. The Scythian men propose that the Amazons become their wives and return with them to the lands of their fathers. The women reply:

> *We should not be able to live with your women, for we and they have not the same customs. We shoot with bows and hurl javelins and ride horses . . . whereas your women do none of these . . . We therefore should not be able to live in agreement with them: but if you desire to keep us for your wives and to be thought honest men, go to your parents and obtain from them your share of the goods, and then let us go and dwell by ourselves.*

The Scythian men accept the Amazons' offer. They relocate together to new lands where the Amazons can continue their traditions alongside their new partners. Herodotus's presentation of the Amazons reveals a balanced look at these independent women.

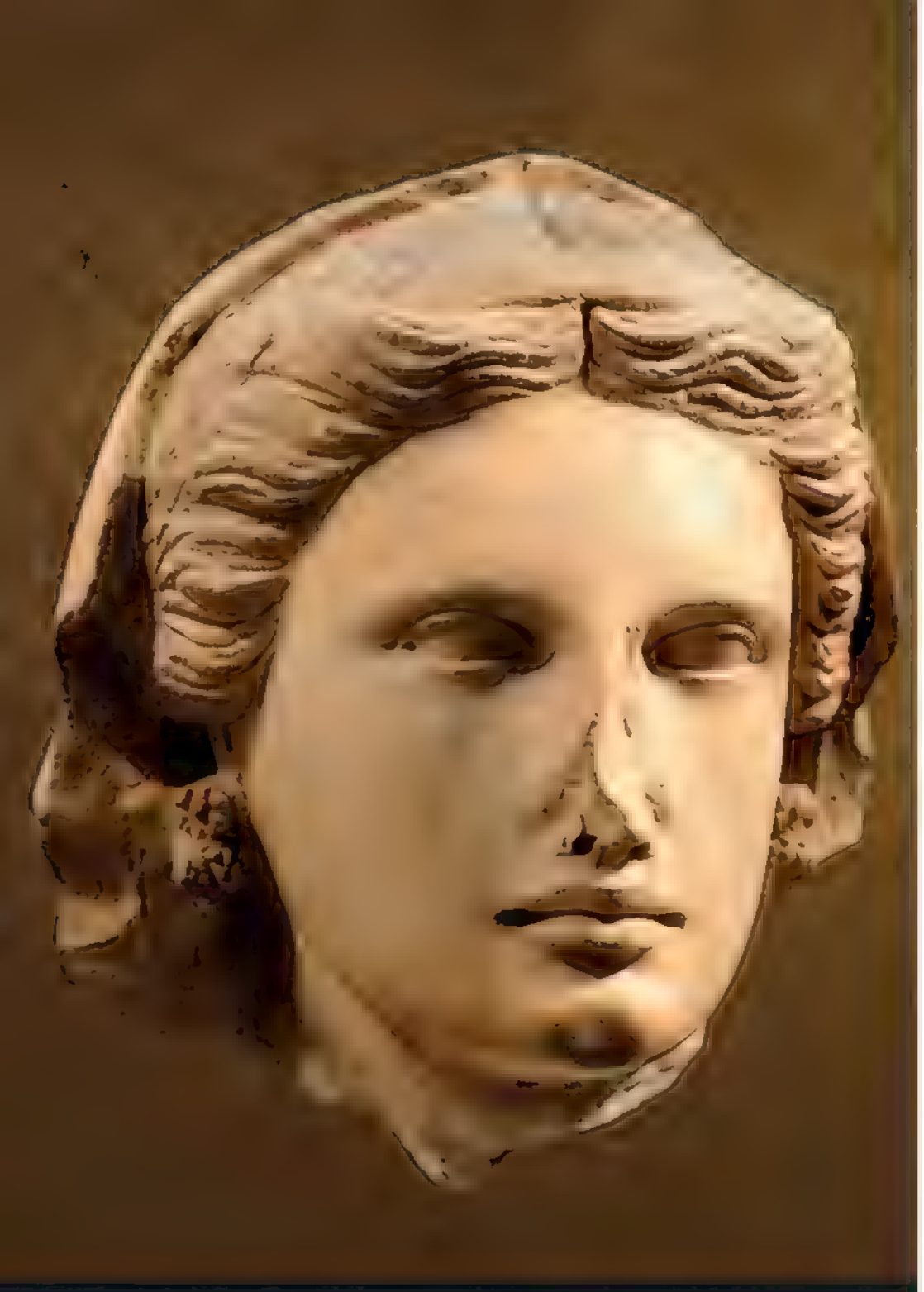
Another figure who wrote about the Amazons was the philosopher Plato. Amazons and Scythian women figure in his *Laws,* a dialogue about the best ways to raise citizens to be prepared for both peace and war. In an ideal state, Plato proposes that at age six, boys and girls "should have lessons in horse riding, archery, javelin-throwing, and slinging." Notably, these military

PARTING SHOTS

Like Scythian mounted archers, Amazons were depicted riding and wielding bows. This fifth-century B.C. Etruscan bronze Amazon is executing a Parthian shot (turning the body to fire an arrow at a pursuer). British Museum, London

BRITISH MUSEUM/SCALA, FLORENCE

"WE SHOULD NOT BE ABLE TO LIVE WITH YOUR WOMEN, FOR WE . . . HAVE NOT THE SAME CUSTOMS. WE SHOOT WITH BOWS AND HURL JAVELINS AND RIDE HORSES . . . YOUR WOMEN DO NONE OF THESE."



BRAVE WOMEN OF ARGOS

AMAZONIAN VALOR can be found among other female characters in classical writings. Plutarch, in his first-century A.D. treatise *On the Bravery of Women,* recounts the deeds of Telesilla, a Greek poet who successfully defended the city of Argos against the Spartans. King Cleomenes of Sparta had defeated the city's army in the field and was marching to Argos to capture the city. Telesilla rallied the women, the youth, and the elderly to take up arms against Cleomenes' attack. Their combined forces repelled the Spartans, and Argos was saved. The second-century A.D. geographer Pausanias wrote of a stela (now disappeared) outside the Temple of Aphrodite in Argos that records Telesilla's bravery, a rare tribute to a woman in a culture where they had little official place in public or military life.

FEMALE FIGURE FROM ARGOS, FOUND AT THE TEMPLE OF APHRODITE, WHERE A NEARBY STELA ONCE COMMEMORATED THE VALOR OF TELESILLA, SAVIOR OF THE CITY
G. DAGLI ORTI/DEA/ALBUM

activities are not the typical martial skills of traditional Greek soldiers. Instead, these lessons mirror the expertise of mounted nomad archers of Scythia, a place that in the time of Plato—the fourth century B.C.—was notorious for warlike women who rode to battle alongside the men. Plato compares these real Scythians with the Amazons of tradition to help frame his argument that the ideal education would be based upon a similar notion of equality:

> *I say further, without hesitation, that the same education in riding and gymnastics shall be given both to men and women. The ancient tradition about the Amazons confirms my view.*

Plato specifies that foreign teachers would be assigned to instruct the children to ride and shoot arrows in wide-open spaces created for the purpose. Ensuring that girls are "trained in precisely the same way as the boys" in athletics, riding horses, and wielding weapons would mean that, in an emergency, Greek women could "take up bows and arrows like Amazons, and join the men" in battle against enemies.

Plato's radical departure from traditional Greek gender roles was not only justified by the ancient stories of Amazons. The philosopher declares that we "now know for certain that there are countless numbers of women . . . around the Black Sea who ride horses and use the bow and other weapons" just like the men. In their culture, Plato continues, "men and women have an equal duty to cultivate these skills." Together, the men and the women join to pursue "a common purpose and throw all their energies into the same activities."

This sort of mutual cooperation and equal training, Plato affirms, are essential to a society's success. Indeed, he calls any state that does otherwise "foolish" because without women's participation "a state develops only half its potential" when at the same cost and effort it could "double its achievement." Plato likens this all-inclusive, egalitarian approach to the famous Scythian archers' ability to shoot arrows with either the right or left hand. Such ambidexterity is crucial in fighting with bows and spears, and "every boy and girl should grow up versatile in the use of both hands."

Scythian women, declared Plato, proved that it is possible and advantageous for a state to decide that "in education and everything else, females should be on the same footing as males and follow the same way of life as the men."

A Dream of Equality

The idea that women could really be the equals of men may have been unsettling to the ancient Greeks, but the idea was one they loved to contemplate in myth, art, theater, and philosophy. Notably, egalitarian democratic ideals were born in ancient Athens and playwrights featured strong, independent women in many popular plays. The myriad myths about Amazons gave Greek men and women a way to imagine equality between the sexes.

In their myths and in their "thought experiments," the Greeks wove imaginative storytelling with facts to create a panoramic world of Amazons, a world that still fascinates today. Many modern female heroes draw heavily upon the traits of Amazons of Greek mythology. Katniss Everdeen, Buffy the Vampire Slayer, and Princess Leia are all beneficiaries. Perhaps the most direct descendent of all is Wonder Woman, who is imagined as an Amazon bestowed with gifts and strengths from the Greek gods.

The eternal struggle to find harmony and balance between men and women seems to lie at the heart of most Amazon tales. It's a timeless, universal tension. Their stories continue to suggest the possibility of egalitarian gender relationships. If it could happen in the past, it's not impossible now.

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Learn more

The Amazons: Lives and Legends of Warrior Women Across the Ancient World
Adrienne Mayor, Princeton University Press, 2016

TWO ON ONE

Two Amazons defeat a man in this detail (above), which appears on the fourth-century B.C. Sarcophagus of the Amazons. National Archaeological Museum of Florence

SCALA, FLORENCE

TALES OF WARRIOR QUEENS

The Amazons appeared with Greek heroes in a multitude of classical Greek stories, legends, and founding myths. Their interactions became popular motifs painted on ceramics.

PENTHESILEA AND ACHILLES ▸

Amazon queen Penthesilea appears in the circa seventh-century B.C. work *Aethiopis* as an ally of the Trojans in their war against the Greeks. Mounted on her swift horse, Penthesilea faces the Greek champion Achilles in combat. Achilles is victorious and kills the Amazon queen with his spear. When he observes Penthesilea's lifeless body, he is moved by her beauty and lets the Trojans honor her with funerary rituals worthy of a man.

ANTIOPE AND THESEUS ▾

Theseus, the mythical founder of Athens, sails to the country of the Amazons with his friend Pirithous. The Amazons, led by Queen Antiope, come bearing gifts to meet them. When Antiope boards the ship, Theseus abducts her and takes her back to Athens. The Amazons then attack the city; Antiope, now married to Theseus, fights alongside her husband. She is eventually killed by an arrow fired by one of her former compatriots.

▲ **ANTIOPE** CAPTURED BY THESEUS AND HIS FRIEND PIRITHOUS. FIFTH CENTURY B.C. LOUVRE MUSEUM, PARIS

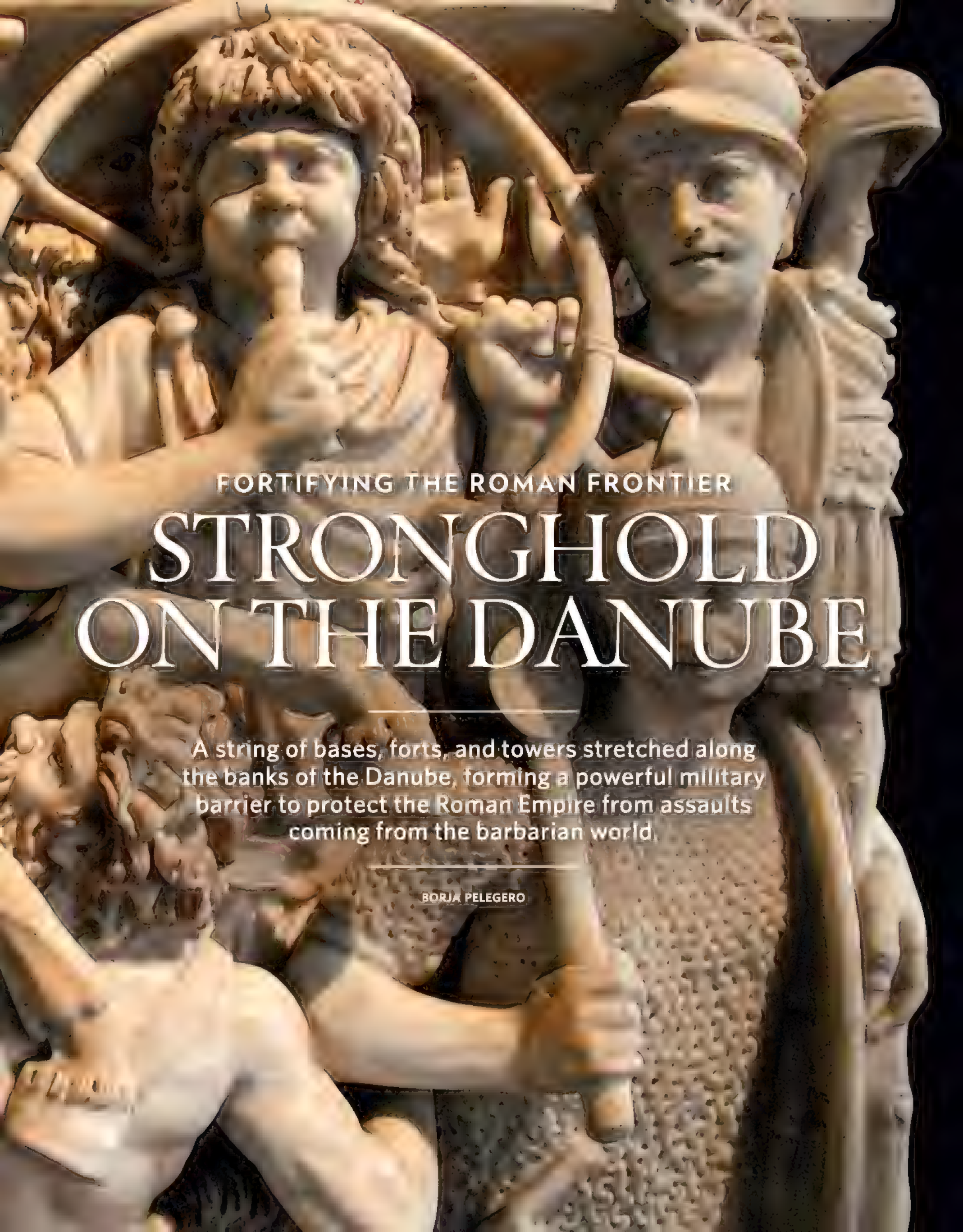
BRIDGEMAN/ACI

PENTHESILEA SUBDUED BY ACHILLES. REPRODUCTION OF AN ATTIC CUP, FIFTH CENTURY B.C.
ALAMY/CORDON PRESS

BATTLING THE BARBARIANS

The Great Ludovisi sarcophagus depicts the chaos of a battle between the Romans and barbarians, who can be identified by their clothing and beards. The sculpture, from the mid-third century A.D., was found on a tomb near Rome's Porta Tiburtina.

ALBUM/AKG-IMAGES/WERNER FORMAN/N.T. SAUNDERS



FORTIFYING THE ROMAN FRONTIER

STRONGHOLD ON THE DANUBE

A string of bases, forts, and towers stretched along the banks of the Danube, forming a powerful military barrier to protect the Roman Empire from assaults coming from the barbarian world.

BORJA PELEGERO

Barbarians at the Border

27 B.C.
As Germanic tribes push south into Roman territory, Emperor Augustus launches a campaign to push them back.

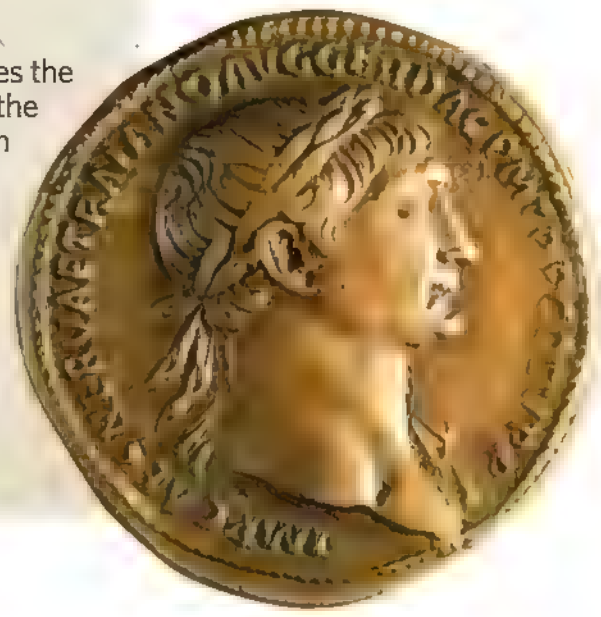
A.D. 9
Three Roman legions are wiped out by barbarians at the Battle of the Teutoburg Forest. Augustus withdraws, fixing a border on the Danube River.

A.D. 105-106
A series of wars against Dacia, today's Romania, culminate in Trajan's victory. Rome annexes it—its only territory north of the Danube.

A.D. 270
The Visigoths attack Dacia while Rome is consumed by civil wars. Although Aurelian defeats the Visigoths, he cedes the territory to them.

A.D. 378
The Visigoths, after having been allowed to settle inside the empire, to flee the Huns, attack and defeat the Romans at Adrianople.

A.D. 476
A Visigoth army removes the last Roman emperor in the west, replacing him with Odoacer, who becomes the first "barbarian" to rule Rome.



THE EMPEROR TRAJAN ON A SESTERCE. ALONG WITH DACIA, HIS MILITARY CONQUESTS PUSHED ROMAN BOUNDARIES TO THEIR FARTHEST EXTENT
DEA/ALBUM

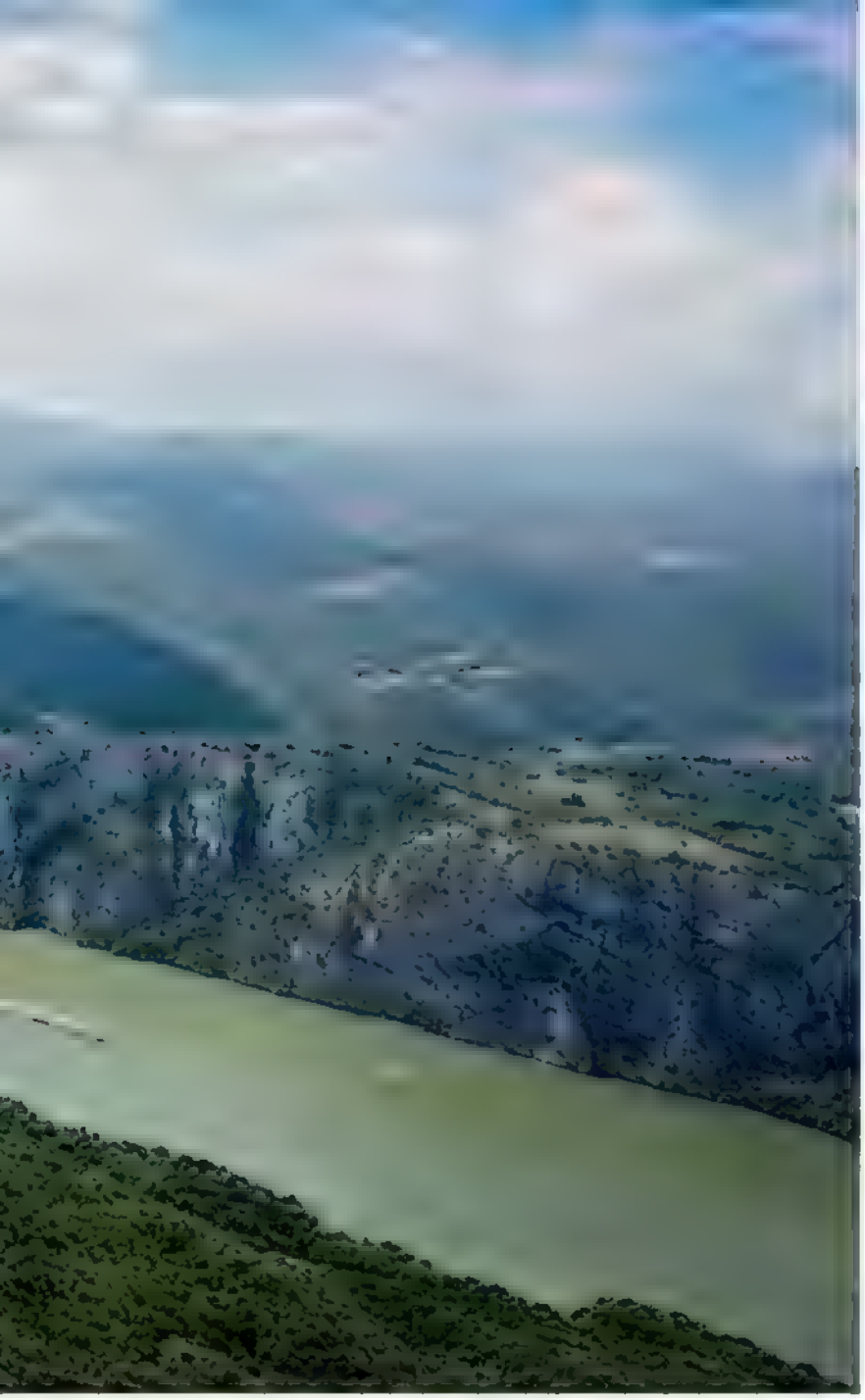
RIVER RUN
The Danube River (above) passes through the Iron Gate gorge between present-day Serbia and Romania. The waterway acted as Rome's northern border in Europe.
CSP_SLAST/AGE FOTOSTOCK

Flowing out of the Black Forest in Germany across Europe, the Danube runs for more than 1,700 miles before it meets the Black Sea. This river, Europe's second longest, shaped the history of the continent as much as it shaped the landscape. The Danube created a natural border, and the rulers of Rome, starting with the first emperor, Augustus, used it to mark the place where Rome ended and the frontier began.

On one side of the river dwelled Romans, on the other were barbarians. Roman writers did not differentiate among the Germanic tribes who lived north of the Danube. Their culture and practices were of no interest to Rome. All Rome wanted to do was keep the barbarians out as it turned its attentions to expanding and maintaining its empire.

Barbarian Identity

Barbarians were not one large group of people. They were many different cultures with differing ethnicities and origins from all over Eu-



A ROMAN'S-EYE VIEW

ROMANS MAPPED THEIR EMPIRE in the fourth century on a sprawling 22-foot-long parchment. A 13th-century copy, known today as the Peutinger Table, is the oldest surviving version. It shows Rome's roads and borders, including the Danube. The river can be seen just below Sarmatarum (or Sarmatia), which was home to the Iazyges, a barbarian tribe of Central Asian origins.

THE BOOT OF ITALY IS SHOWN ON A SECTION (ABOVE) OF THE PEUTINGER TABLE. AUSTRIAN NATIONAL LIBRARY IN VIENNA

AGE FOTOSTOCK

rope and Asia. The nomadic Huns most likely came from the area around Kazakhstan, the Vandals from Poland and Scandinavia, and the Picts from Britain, while the Sarmatians migrated westward from Iran.

The image of a "barbarian" as a hairy wild-eyed man communicating with grunts and shouts comes from ancient Greece. The Greek word *barbaros* was used to describe non-Greeks whose language was incomprehensible, sounding like "bar, bar, bar." Later Roman writers adopted the term and used it to mean "other," applied to both non-Romans and uncivilized people.

To Roman writers, barbarians epitomized a lack of discipline, a quality Roman warriors were trained to value and employ. In his first-century A.D. work *Germania,* the historian Tacitus wrote: "A German is not so easily prevailed upon to plough the land and wait patiently for harvest as to challenge a foe and earn wounds for his reward. He thinks it tame and spiritless to accumulate slowly by the sweat of his brow what can be got quickly by the loss of a little blood." In short, Tacitus believed a barbarian would rather steal and kill for his necessities than make them himself.

The Germanic tribes that lived along the Danube were not monolithic. They were numerous and distinctive. Some were more powerful than others, such as Marcomanni, the Quadi and Cherusci. Most used Germanic languages that probably differed (historians have found no written records from these cultures). They practiced different faiths. They had different motives for interacting with the Romans: Some sought trade, while others formed alliances. Some sought conflict with Rome, while others may have preferred no interaction at all.

The Germanic tribes fought with each other just as easily as they fought with Rome. The Cherusci leader Arminius in A.D. 9, sought a pact with the king of the Marcomanni to launch a joint attack against the

WOUNDED WARRIORS

Reliefs from Trajan's Column show the challenges faced by Roman legionaries on the Danube (below), such as the risk of injury in battle. Museum of Roman Civilization, Rome

DEA/SCALA, FLORENCE

MONUMENT TO VICTORY

Ruins of a Roman fortress still stand in southeastern Romania at Adamclisi, the site of Trajan's victory over the Dacians in A.D. 102. The Tropaeum Traiani was erected there in Trajan's honor but was severely damaged over the centuries. In 1977 a reconstruction was built to remind people of the ancient historic battle.

CALIN STAN/GETTY IMAGES

empire. He turned him down, and eight years later, in A.D. 17, Arminius attacked and defeated the Marcomanni instead, sending their king to exile in Italy.

Augustus on the Frontier

Under the republic, Rome expanded into new territories and acquired new provinces—first in Italy, then in North Africa, across southern Europe, and into the Middle East. When Augustus became the first emperor of Rome in 27 B.C., he saw that protecting these territories was essential to maintaining Rome's power. Augustus developed a new strategy to define and defend the borders of the empire.

When it came to frontier defense, the emperor's priority was the Italian Peninsula's northern border. Germanic tribes migrating into what is now southern Germany and Austria had been boldly launching raids on frontier settlements, sometimes striking inside the peninsula itself. Until then, Roman expansion had been mostly by sea toward the west, south, and east, leaving the mainland of Europe relatively neglected and vulnerable to attack.

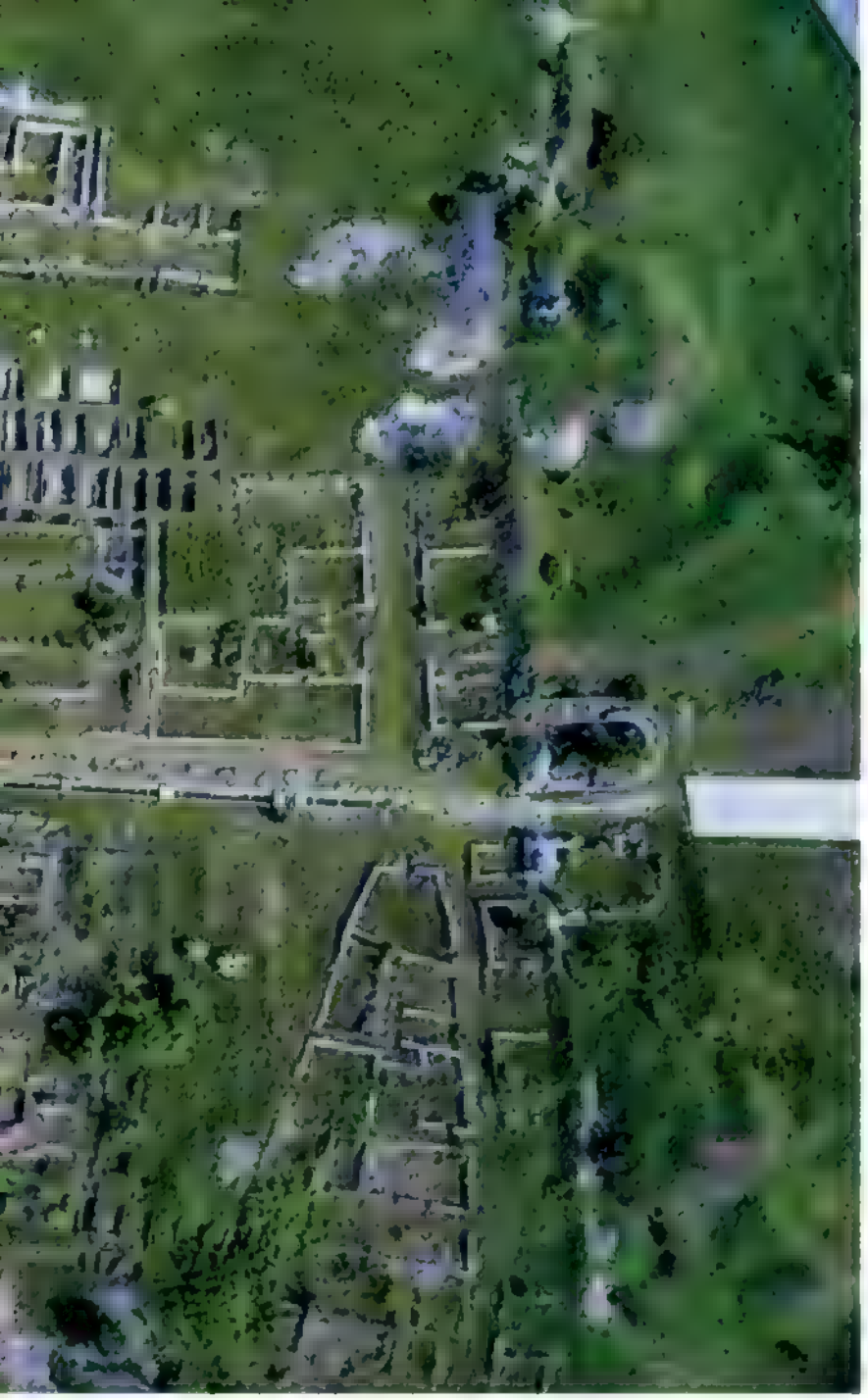
IMPERIAL SUPERVISION

A detail from Trajan's Column (below) shows the emperor watching his men build a stone bridge during the Dacian campaign. Museum of Roman Civilization, Rome

AKG/A_BJM

Augustus brought in more troops, launching them against the barbarians in a campaign to subdue the region and establish a defensible border farther north. With the campaign going well, he pushed the legionaries beyond the Danube River, setting his sights on reaching the Elbe River farther north and east. In A.D. 9 three crack legions (some 15,000 soldiers) led by general Varus were ambushed and annihilated by barbarian soldiers in the Battle of the Teutoburg Forest.

For Augustus and his successors, the defeat at Teutoburg—one of the empire's worst—made it clear that the Germanic tribes were a formidable foe. The Romans withdrew to the south, and Augustus set a fixed northern



ALONG THE WATCHTOWER

ROMAN FORCES BUILT TOWERS along the Danube as an alarm system that sounded if barbarians began attacking. A detail from Trajan's Column in Rome (above) shows one built on the shores of the river. Typically built of stone, the watchtower (right) is surrounded by a palisade and has a gallery at the upper level. Stacks of firewood (left) could be lit to signal neighboring fortifications. Two haystacks (center) would provide food for horses.

ERICH LESSING/ALBUM

border along the banks of the Danube. From then, Roman strategy to the north shifted to defending the frontier more than expanding the empire. Together with the Rhine to the east, the Danube would remain a boundary of imperial Europe for more than four centuries.

For protection, Rome relied first on the river's width of 1,500 feet along much of its route as a natural defense. Augustus then added a border patrol, launching a fleet to secure the waterway. He built a series of forts, watchtowers, and signal stations to detect and contain an attack or call for reinforcements, which also served to monitor movements, regulate trade, and collect customs fees. This system, known as *limes,* originally meant a fortified military road. It came to signify a network of defensive installations—including walls, forts, and palisades—built by the Romans on the empire's frontiers along the Danube as well as other locations.

The land between the legionary bases and the auxiliary forts was dotted with small forts and watchtowers. Along the Danube and the Rhine, there was much less construction of this type than has been documented on other fortified borders, such as Hadrian's Wall in Britain. Although some forts have probably been lost due to erosion, it seems that the river's considerable width was obstacle enough for any attacker.

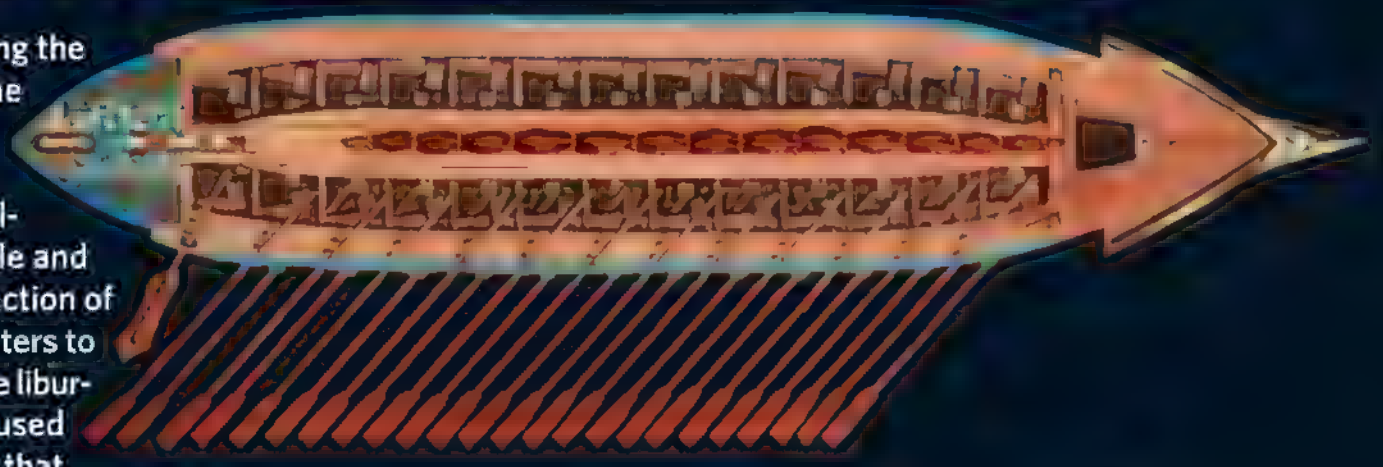
The Augustan border strategy along the Danube was designed for maximum flexibility, seeking to maintain peace through a combination of security, trade, and diplomacy. Even something like granting coveted access to markets could involve an exchange for border security, adding a buffer against more hostile tribes farther from Rome. Favored tribes would win the right to move through the frontier more easily, providing they were in smaller groups and unarmed, while others could only sell wares at markets under armed guard.

SOLDIERS' POSE

Roman legionaries bear their distinctive shields in a relief (below) from the Tropaeum Traiani monument at Adamclisi. Archaeological Museum of Istanbul

DEA/GETTY IMAGES

PATROLLING THE DANUBE



A LIBURNA FROM THE SECOND CENTURY A.D. THIS RECONSTRUCTION OF THE AGILE WARSHIP IS BASED ON THE DESCRIPTION OF HISTORIAN J. S. MORRISON WITH DETAILS SUPPLIED BY TRAJAN'S COLUMN.
ILLUSTRATION: GIUSEPPE RAVA/OSPREY PUBLISHING

THE TWO ROMAN FLEETS sailing the Danube performed the same functions on the river as the legions did on land. Warships monitored the waters, controlling the movements of people and goods and ensuring the collection of taxes. There were also freighters to move troops and supplies. The liburna was one type of warship used on the Danube, a light galley that mimicked the design of Illyrian pirate vessels. A liburna was typically 80-100 feet long with about 60 oars. A smaller version, specially adapted to river use, was also used, this one measuring around 65 feet long and having 50 oars. There were a few large ships—130-foot-long triremes with 120 oars—but these may have only been used as flagships. The most common types of freighters were the onerariа and the actuaria. Both these ships were crewed with a naval infantry comprising a mix of sailors *(nautae)* and oarsmen *(remiges)*.

TRAJAN EMBARKS AT BRINDISI ON HIS WAY TO DACIA. MOLD FROM TRAJAN'S COLUMN, NATIONAL MUSEUM OF ROMANIAN HISTORY, BUCHAREST
DEA/ALBUM

UNITED EFFORTS

BARBARIAN FORCES were a constant threat to Rome despite successes patrolling the Danube. In A.D. 167 a consortium of Marcomanni, Quadi, and other Germanic tribes attacked Roman towns in Italy for the first time in more than 150 years. They ransacked the prosperous town of Opitergium (modern Oderzo, Italy) and defeated the Roman troops sent to stop them. Then they marched against Aquileia, but lacking siege equipment, could not get past its walls. Emperor Marcus Aurelius fought the barbarians repeatedly over the next decade, culminating in a major victory in A.D. 179, a year before his death. His son, Emperor Commodus, agreed to peace with the by-then destitute tribes in exchange for a promise not to retaliate. The Marcomanni remained a threat until A.D. 296, when they were beaten definitively.

Manning the Forts

The Roman territorial army was divided into legions, each containing some 5,000 regular troops, plus auxiliaries. A main frontier base along the Danube could accommodate as many as 6,000 men, much larger than the villages and hamlets in the frontier zone. Within the legion there were different infantry, cavalry, and mixed units known as the *cohortes* and *alae,* each of which numbered between 500 and 1,000 men. The smallest detachments, or *numeri,* consisted of some 200 barbarian men who fought with their own equipment and customs rather than the Roman style.

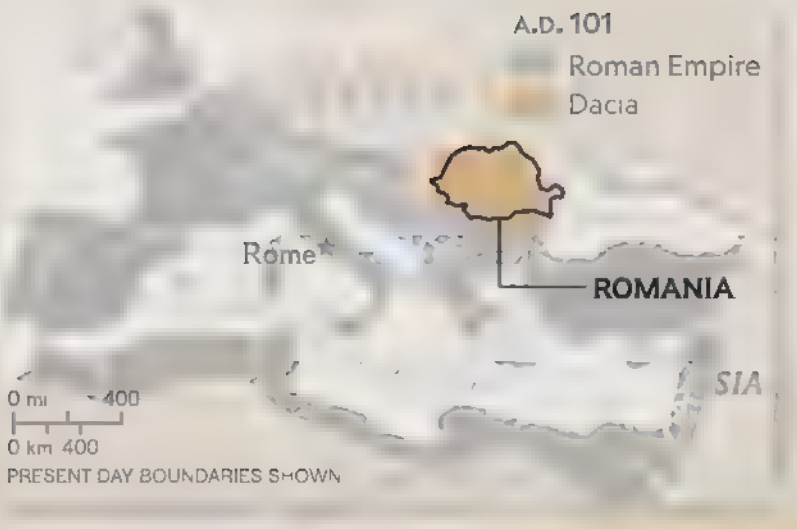
The main bases were large complexes of some 50 acres and followed a rectangular site plan with rounded corners. The largest were the so-called *castra,* such as the Lauriacum on the Danube limes in Austria. They were comprised of a headquarters building, commander's residence, barracks, barns, stables, warehouses, hospital, baths, and latrines. The castra were often accompanied by a settlement of local tribespeople outside the walls who ran businesses catering to the needs of the camp.

Smaller fortified settlements followed the same format as the castra, but were only about one-fifth the size and hosted just one cohort (or two, in exceptional cases). They had most of the same buildings as in the legionary bases, without the hospital and the baths. Small forts were occupied by cohort detachments and numeri. Along river borders like the Danube, all of these structures were arranged irregularly, depending on the river's terrain.

A soldier's daily life was organized into *vigilia,* the eight watches in a day that required rotating groups to stand guard in three-hour shifts. Training sessions were also on the agenda: Recruits had two each day, one in the morning and one in the afternoon, lasting the length of a watch, which included training in

MEDUSA BRONZE GILT SCULPTURE FROM ULPIA TRAIANA SARMIZEGETUSA, DACIA, SECOND CENTURY A.D. PALAZZO MASSIMO ALLE TERME, NATIONAL ROMAN MUSEUM, ROME

DEA/A. DUM



TRAJAN'S DACIAN WARS

LOCATED IN TODAY'S ROMANIA, Dacia was a wealthy regional power known for its gold and silver mines and skilled metalworkers. Dacian raids across the Danube into Roman lands spurred Emperor Trajan to wage a war, first in A.D. 101-102 and again in 105-106. Trajan's forces destroyed Sarmizegetusa, the Dacians' capital, wiped out their culture, and folded their lands and their treasures into the empire.

ABOVE AND BELOW: NG MAPS

APPROXIMATE ARMY ROUTES
Roman, A.D. 101–102
Dacian, A.D. 101–102
Roman, A.D. 105–106
0 40 miles
0 40 kilometers
Modern names appear in parentheses

Tisza
Apuseni Mts.
Mureș
Gold deposits
Potaissa (Turda)
Silver deposits
D A C I A
Apulum (Alba Iulia)
Battle of Sarmizegetusa 105
Sarmizegetusa
(Berzovia) Berzobis
Aizis
Roman fortress
Battle of Tapae 101
CARPATHIAN MTS. (TRANSYLVANIAN ALPS)
CARPATHIAN MOUNTAINS
Castra Traiana (Sîmbotin)
(Orșova) Dierna
Singidunum (Belgrade)
Lederata
Viminacium
Drobeta (Drobeta-Turnu Severin)
TRAJAN'S BRIDGE
UPPER MOESIA
Olt
Siret
Prut
SARMATIA
Black Sea
Danube
Durostorum (Silistra)
Battle of Adamclisi 102
Oescus
Novae
LOWER MOESIA
R O M A N E M P I R E

THE MOVEMENTS of Roman military reveal the power brought across the Danube to fight the Dacians. Rome scored its first major victory at Tapae in 101. The Dacians sued for peace in 102. After this accord broke down, Trajan fully defeated them at their capital, Sarmizegetusa, in 106.

THUNDERSTORMS REPORTEDLY BROKE OUT DUR NG THE BATTLE OF TAPAE IN A.D. 101, THROWING THE DACIANS INTO DISARRAY
DEA/A. BUM

A REPLICA OF TRAJAN'S BRIDGE IN DROBETA-TURNU SEVERIN, ROMANIA, WITH TWO REBUILT PIERS AND A SECTION OF THE WOODEN SPAN.

KENNETH GARRETT

FIRST CROSSING

AN ARCHITECTURAL WONDER, Trajan's Bridge was ordered built in A.D. 103 to secure rapid supply lines in Rome's war against the Dacians. Completed in two years, it connected the Danube's southern shore (modern-day Kladovo in Serbia) with the northern (modern-day Drobeta-Turnu Severin in Romania). Designed by Apollodorus of Damascus, the bridge was made of intricate wooden arches that stood atop stone piers. Rather than build short spans, which would have required more piers and taken too long, he devised a unique wooden arch solution. The bridge was demolished some 150 years later by Aurelian as he withdrew from Dacia. At over six-tenths of a mile, it was the longest span bridge built for more than 1,000 years. Twelve of the original 20 piers still exist, although all but two are underwater.

weapons use and horseback riding. Apart from the training, each soldier had a regular job.

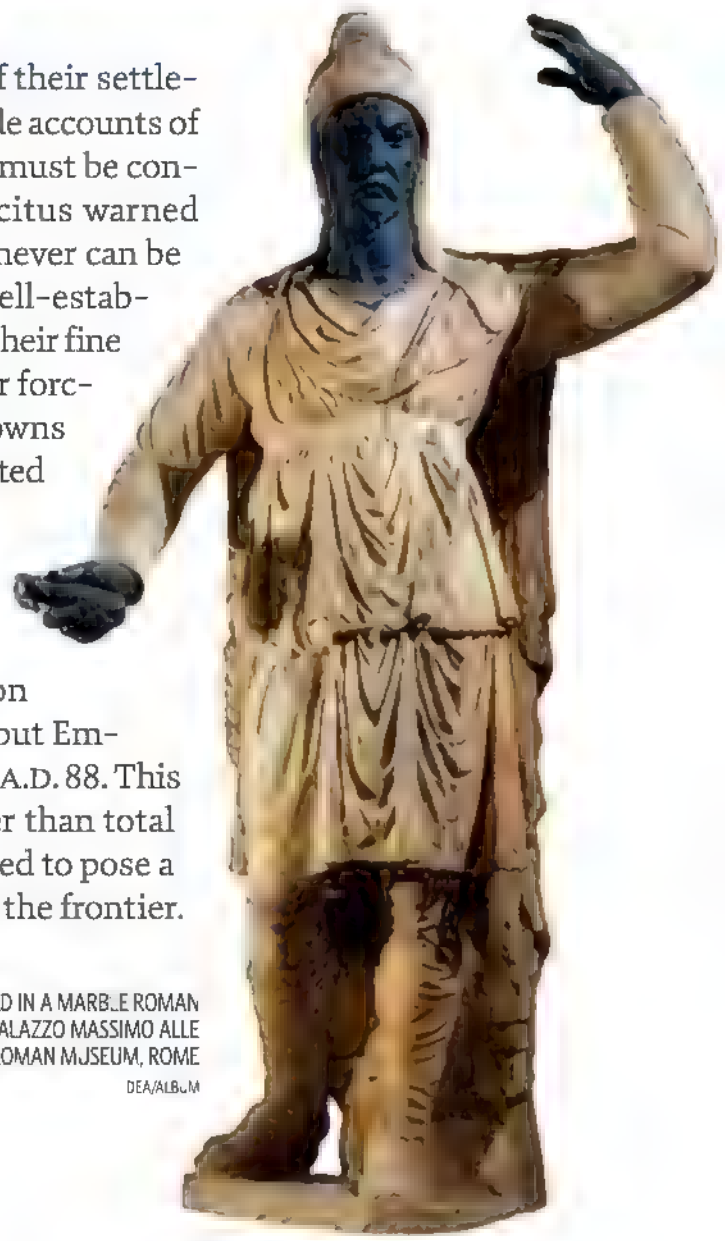
Special assignments could change a soldier's routine too. A papyrus found in Egypt reveals activities carried out by soldiers in one auxiliary unit on the Danube in the early second century A.D. Some were engaged as bodyguards to imperial officials, two groups traveled to Gaul to procure clothes and cereals, while three others went north of the Danube—one to supervise crops, one to do reconnaissance, and another on an unspecified expedition.

Attacks on the Border

For recruits who began their service on the Danube frontier, action was probably limited to the odd bandit attack or isolated barbarian incursion across the river for most of the first century A.D. But those who served in A.D. 85 would face the first of three Roman wars against the kingdom of Dacia (in what is Romania today), the strongest kingdom north of the Danube.

The Dacians had no written language, so much of what is known about them comes from the archaeological study of their settlements. Roman sources do provide accounts of Dacian culture, but their biases must be considered with a careful eye. (Tacitus warned that they were "a people which never can be trusted.") The Dacians were a well-established regional power known for their fine metalwork and rich mines. Their forces would raid Roman frontier towns along the Danube, and Rome wanted to put a stop to it.

Led by King Decebalus, the Dacians attacked the Roman province of Moesia, located south of the Danube. They won two battles against the empire, but Emperor Domitian defeated them in A.D. 88. This conflict ended with peace rather than total defeat, and the Dacians continued to pose a threat to Rome's holdings along the frontier.



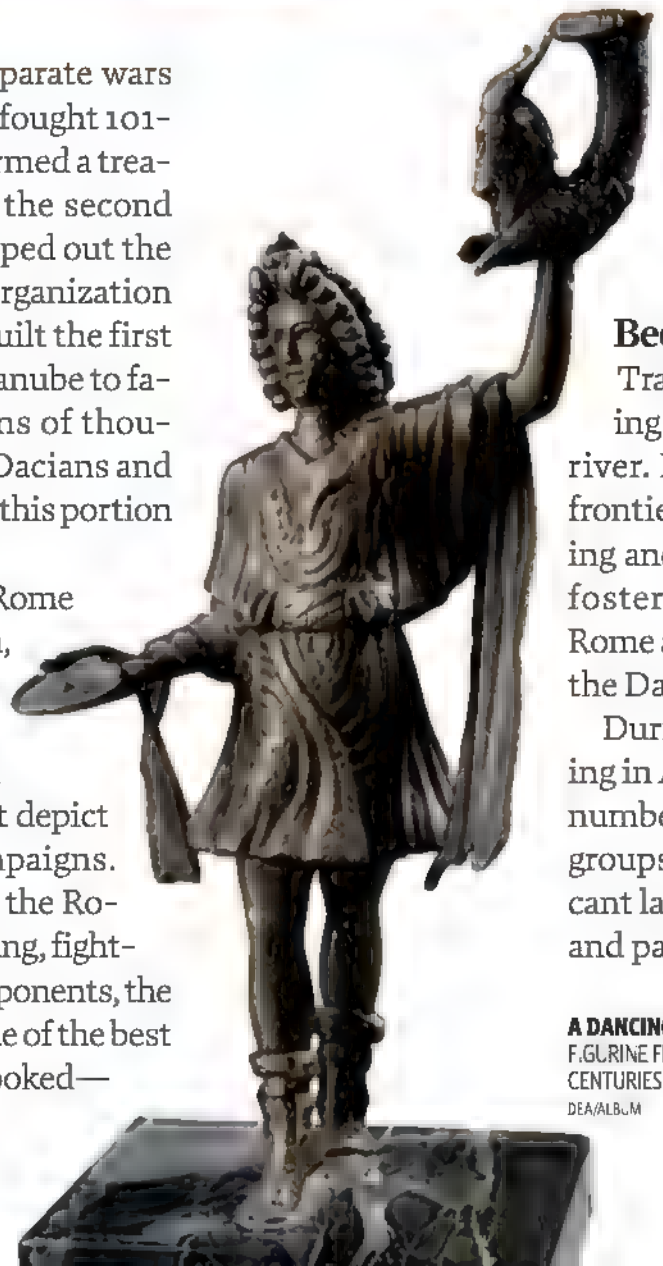
DACIAN SOLDIER REPRESENTED IN A MARBLE ROMAN SCULPTURE. SECOND CENTURY A.D. PALAZZO MASSIMO ALLE TERME, NATIONAL ROMAN MUSEUM, ROME

DEA/ALBUM

FEEDING AN ARMY
The saying "an army marches on its stomach" was true for Roman soldiers, who grew and harvested provisions as pictured in a detail from Trajan's Column. Museum of Roman Civilization, Rome
AKG/ALBUM

Emporor Trajan, fought two separate wars against the Dacians. The first was fought 101-102. King Decebalus and Trajan formed a treaty, which the king then broke. In the second conflict, Trajan and his legions wiped out the Dacians. In a marvelous show of organization and engineering, Trajan's forces built the first permanent bridge spanning the Danube to facilitate military supply lines. Tens of thousands of soldiers finished off the Dacians and reestablished Roman control along this portion of the Danube.

The spoils were brought back to Rome and used to build Trajan's Column, a 126-foot-high monument that still stands in Trajan's Forum in Rome. The column is covered with sculptural reliefs of 155 scenes that depict multiple aspects of Trajan's campaigns. Roughly half of the scenes involve the Roman military, showing them marching, fighting, and making sacrifices. Their opponents, the Dacians, also appear and provide one of the best visual sources of how barbarians looked—their shaggy beards contrasting with clean-shaven Roman faces. Other panels show more practical concerns of daily life on the frontier: harvesting grain, clearing forests, and building forts.

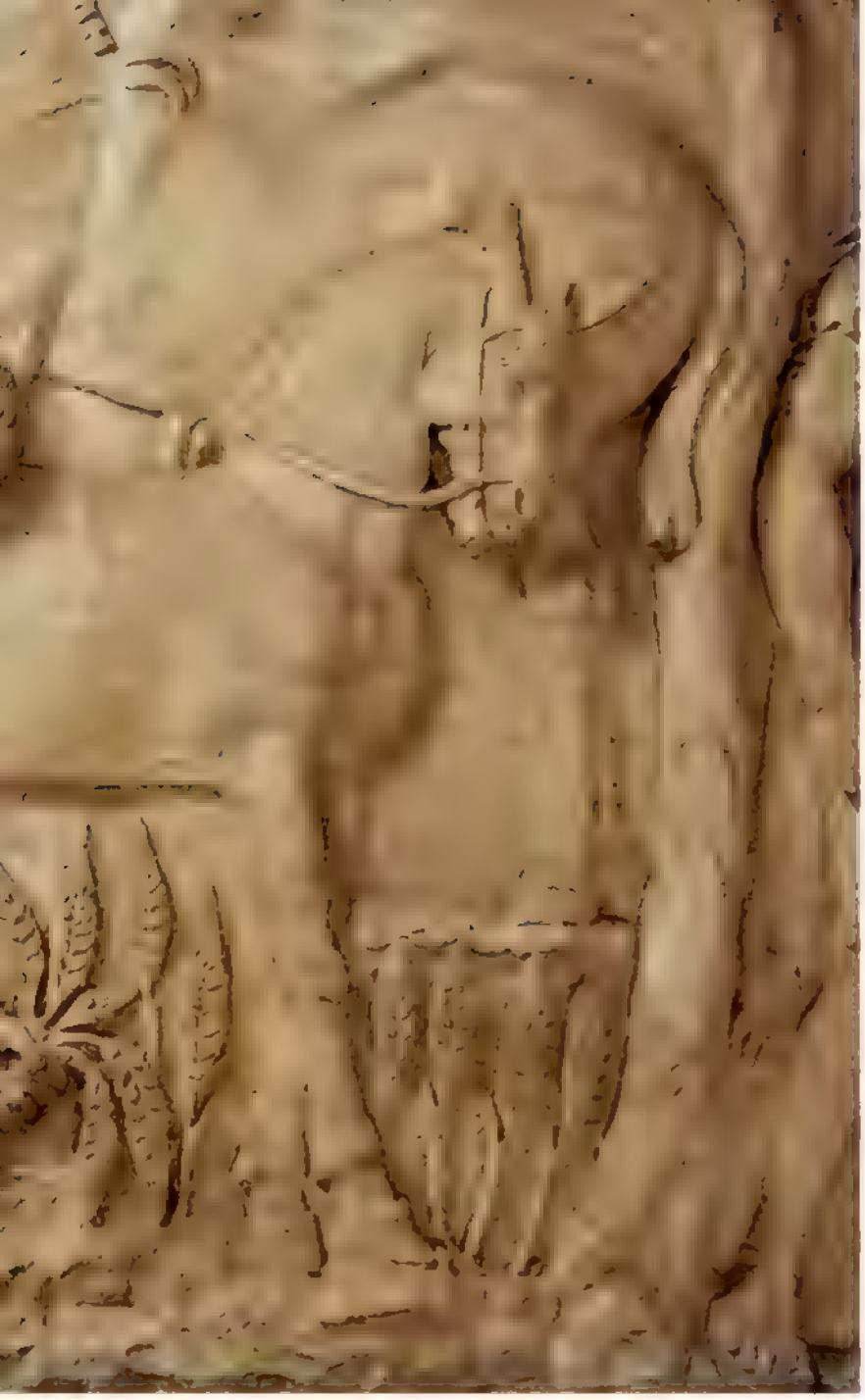


A DANCING LAR. THE LARES WERE MINOR ROMAN DEITIES. BRONZE FIGURINE FROM DACO-ROMAN SITE IN CORABIA, ROMANIA. SECOND-THIRD CENTURIES A.D. NATIONAL MUSEUM OF ROMANIAN HISTORY, BUCHAREST
DEA/ALBUM

Becoming Roman

Trajan's show of strength served as a warning to the other Germanic tribes along the river. During most of the next century, the frontier system fulfilled its function of guarding and regulating the borders, which in turn fostered deepening connections between Rome and the Germanic tribes who lived along the Danube.

During the reign of Marcus Aurelius (starting in A.D. 161), state policy allowed increased numbers of barbarians (unarmed and in small groups) to cross the Danube and settle on vacant lands where they raised families, farmed, and paid taxes. Their sons could enlist in the



THE RUINS OF A PAVED ANCIENT DACIAN ROAD IN SARMIZEGETUSA, CAPITAL OF DACIA, CONQUERED BY TRAJAN IN A.D. 106
TIBERIU-CALIN GABOR/ALAMY/ACI

ROME'S FRONTIER COLONY

CAPITAL OF ANCIENT DACIA, Sarmizegetusa was conquered by Trajan in his campaign against the Dacians, A.D. 105-106. Nearby he founded Colonia Ulpia Traiana Augusta Dacica Sarmizegetusa, whose first settlers were veterans of the Dacian wars. This heavily fortified enclave became the center of Dacia, the only Roman province beyond the Danube, famed for its silver and gold mines.

Roman army, and their descendants would routinely rise to the high ranks of the military or the administration. Incorporating the Germanic tribes into Roman civilization was seen as a way to protect the empire by giving these former outsiders a stake in its continued success.

Roman policy toward immigration was constantly evolving, often contradictory but always guided by practicality. Tribes that were loathed on the one hand might eventually be candidates for Roman citizenship, a trait present since the empire's early days. Tacitus quotes Emperor Claudius addressing the Senate in A.D. 48 in favor of letting in members of the Gallic aristocracy: "My ancestors encourage me to govern by the same policy of transferring to this city all conspicuous merit, wherever found." The Danubian limes continued to function as the northern frontier. Subsequent sovereigns reinforced them with the construction of new fortifications.

The empire began to weaken in the third century as Rome itself began to fall into chaos. Between A.D. 235 and 284, emperors reigned an average of 18 months. This instability drew Rome's attention away from the frontier. The Visigoths (western Goths) took advantage and attacked Dacia in A.D. 270. Although Emperor Aurelian defeated the Visigoths, he surrendered the territory north of the Danube to them.

Meanwhile, smaller tribes of barbarians beyond the Danube and the Rhine had been forming mighty confederations: the southern Germans into the Alemanni and middle Rhine groups into the Franks. In A.D. 260 the Alemanni broke through northern limes established by Hadrian, forcing the Roman frontier back to the Danube and Rhine. The Danube limes fell into disrepair, and emperors tried to strengthen them in the 300s. When Rome fell a century later, the Danube limes would still be standing.

A SPECIALIST IN ANCIENT HISTORY **BORJA PELEGERO** HAS WRITTEN A BIOGRAPHY OF GENGHIS KHAN.

FROM FORTRESS TO CITY

In Petronell, Austria, stand the remains of Carnuntum, Rome's most important defensive position on the upper Danube.

THE REMAINS OF CARNUNTUM have been studied since 2012 by the Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology (LBI ArchPro) in collaboration with others. Using noninvasive methods such as ground-penetrating radar and aerial photography, researchers have discovered a gladiator school, two amphitheaters (one civilian and one military), and traces of one of the area's oldest Roman encampments.

Carnuntum began in the year A.D. 6 as a winter military camp, located here on the banks of the Danube and occupying an area the size of six football fields.

Road connecting Carnuntum with Vindobona (Vienna)

City of Carnuntum

A *ludus*, or gladiator school, included training grounds, dormitories, and a bath. Archaeologists also found remains of the civilian amphitheater nearby.

BIRTH OF A FRONTIER TOWN

The Roman presence in the Carnuntum area began around A.D. 6, when Tiberius set up a winter camp in his campaign against the Marcomanni. During the reign of Claudius (A.D. 41-54), a permanent legionary base was added along with a harbor for the Danube fleet. Within a few years, a civilian settlement, or *canaba*, developed around it, inhabited by soldiers' families, licensed veterans, and service people for the military—including artisans, merchants, and prostitutes. Under Domitian (A.D. 81-96), an auxiliary fort was built to accommodate a division of 600 cavalry. The addition enhanced the location's military capabilities, which included a field army of some 5,000 legionary troops. At the end of the first century A.D., the city of Carnuntum was formally founded and became the capital of a new province, Pannonia Superior. It was the most important legionary camp of the upper Danube frontier with some 50,000 inhabitants by the end of the second century A.D. As the Roman Empire's strength began to wane in the coming centuries, Germanic tribes targeted this city on the Danube with repeated invasions until it was ultimately abandoned in 433.

7REASONS/IKANT/LBI ARCHPRO

Military amphitheater
Permanent legionary base
Auxiliary fort
A civilian settlement, called a *canaba*, grew up close to the Roman legionary fortress.

YOUTH MOVEMENT

Gustave Doré's 1877 engraving reflects a popular romanticized view of the 1212 Children's Crusade, while historians continue to investigate the true details. Opposite: 13th-century French processional cross

ENGRAVING: GRANGER/AURIMAGES CROSS: ALBUM

THE CHILDREN'S CRUSADE

Mission of the Masses

In 1212 thousands of European youths banded together to try to take back the Holy Land from Muslim control. Unsanctioned by the church, their holy heroism left a deep mark on the popular imagination and fascinated historians.

ENRIQUE MESEGUER

WITH THEIR FLOCKS

Shepherds listen to an angel announce Jesus' birth in a 12th-century relief from the Church of San Giovanni in Fonte, Verona, Italy. Many of the participants of the Children's Crusade were shepherds themselves.

DEA/GETTY IMAGES

HOLY POVERTY

The Crusades coincided with the life of St. Francis of Assisi (below, in a 14th-century painting before Pope Innocent III), who believed poverty brought the faithful closer to God.

DEA/ALBUM

The Crusades stand as one of the key historical milestones of the Middle Ages. Backed by the Catholic Church, European Christians launched eight separate missions to take the Holy Land from Muslim control between 1096 and 1291. Led by Europe's elite, the Crusades were documented in great detail by the leaders of the church as well as the people who fought them. Their leaders, their movements, and their outcomes are well known to history.

The story of the Children's Crusade of 1212 brings to mind powerful images of throngs of medieval European children gathering together in faith to wrest Jerusalem from the Muslims. The events of the two expeditions fascinated 13th-century audiences, and chroniclers wrote different accounts decades after the Children's Crusade ended. Historians, however, are hampered by a lack of detailed, primary sources about these popular movements of the early 13th century. Most consider that the events recorded by later chroniclers may be legendary or exaggerated.

The Children's Crusade was not an official crusade—which had to be sanctioned by a pope—nor does there exist solid evidence that it was supported predominantly by young children. Nevertheless, it was a mass movement, inspired by the desire to defend and spread Christianity in the early 1200s.

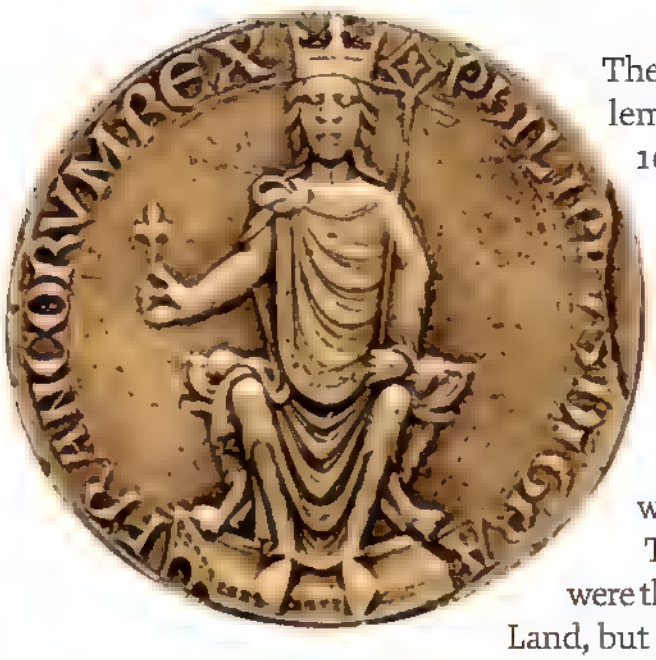
The Age of Crusades

Official papal crusades began in the 11th century. Islam had spread far and wide to formerly Christian lands in the Near East and North Africa in the seventh century, and to the Iberian Peninsula in the eighth. By the late 11th century, Europe was enjoying a period of economic strength, and the papacy had asserted its power following a series of important reforms. Buoyed by a resurgence in pilgrimage across Europe, the Catholic Church wanted to expand. The blessing of Pope Urban II in 1095 launched the First Crusade, a bid to retake the Holy Land, the following summer.

INSPIRATION

Construction of the Cathedral of Chartres, southwest of Paris, began in the 12th century. Many Europeans were inspired to join the Crusades after hearing sermons in the shadow of this magnificent edifice.

LEROY ARTHUR/AGE FOTOSTOCK

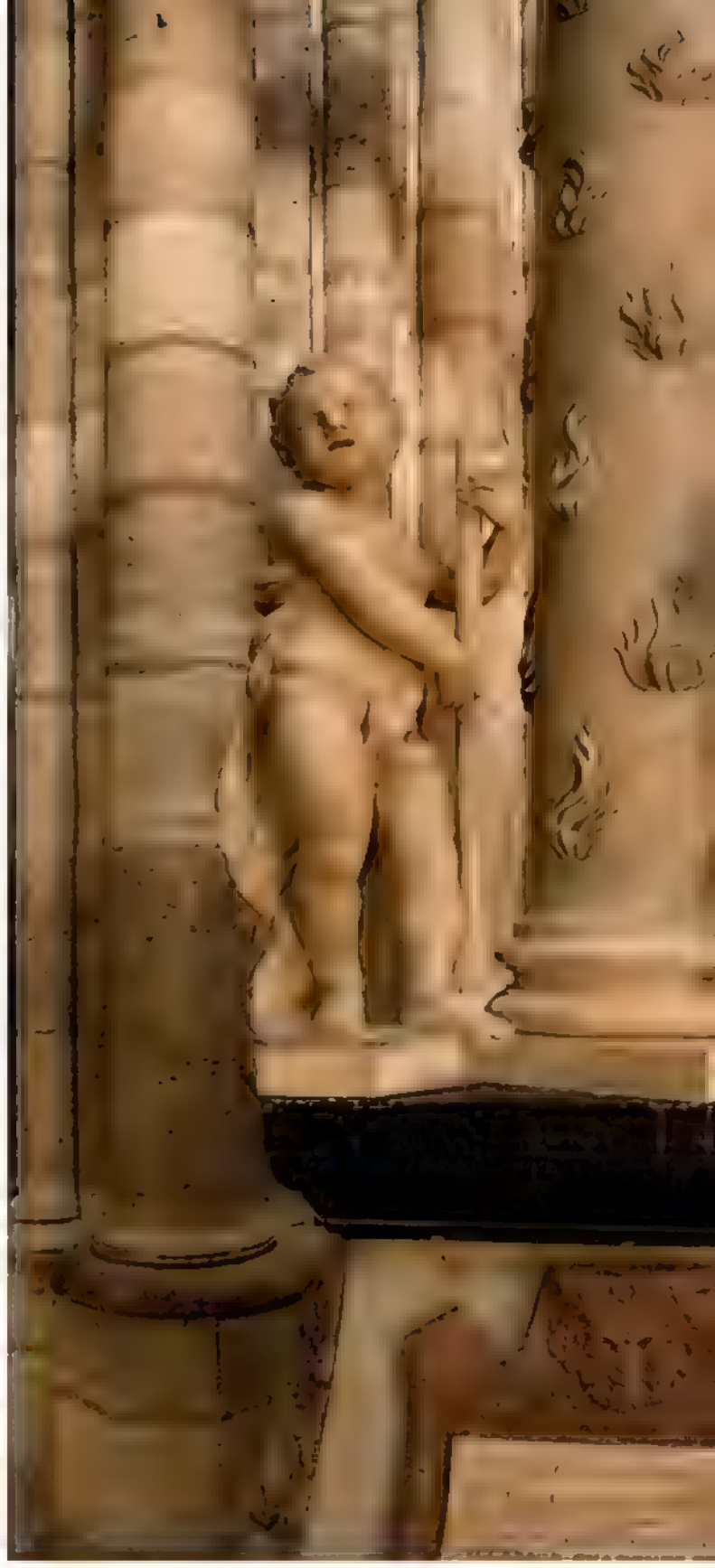


ROYAL APPROVAL

Stephen of Cloyes led his followers to Paris in 1212 to seek an audience with King Philip II of France, depicted crowned and enthroned on a royal seal (above).

JOSSE/SCALA, FLORENCE

The Christian alliance took Jerusalem from the Fatimid Muslims in 1099 and established the Kingdom of Jerusalem. Over the next two centuries, seven crusades followed in an attempt to retain control in the Holy Land. Muslim retaliation would prove too strong, however, and the last European crusader stronghold would fall to the Mamluks in 1291. The most well known Crusades were these large expeditions to the Holy Land, but there were other military missions in Europe that roused the faithful. In the early 1200s, Pope Innocent III proclaimed two "local" European crusades: One was the struggle against Almohad Muslim rulers in Spain; the other was the campaign to destroy Catharism, a Christian heresy popular in southern France. Both these local and distant holy wars stirred up religious fervor among commoners in Europe, in turn sparking a series of "popular" crusades.



The Mysterious *Pueri*

The Children's Crusade began in spring 1212 as the church sought recruits to fight Muslim Spain and the Cathars. But a new group of people willing to fight for God started to emerge, volunteers who were neither mercenaries or warriors. Thirteenth-century chroniclers called them *pueri*.

Pueri is a Latin term that can mean children generally or boys specifically. The appearance of this word in the sources led to the popular name of the Children's Crusade, but historians are unsure that all the participants were literal children. Existing sources have scant details, so it is not possible to establish the exact ages of all the pueri. While the youthfulness of many of those who took part was noted by chroniclers, some historians have recently suggested that "pueri" could have been a social designation for poor, landless peasants and that their movement may have been notable for the large number of poor, peasant youths.

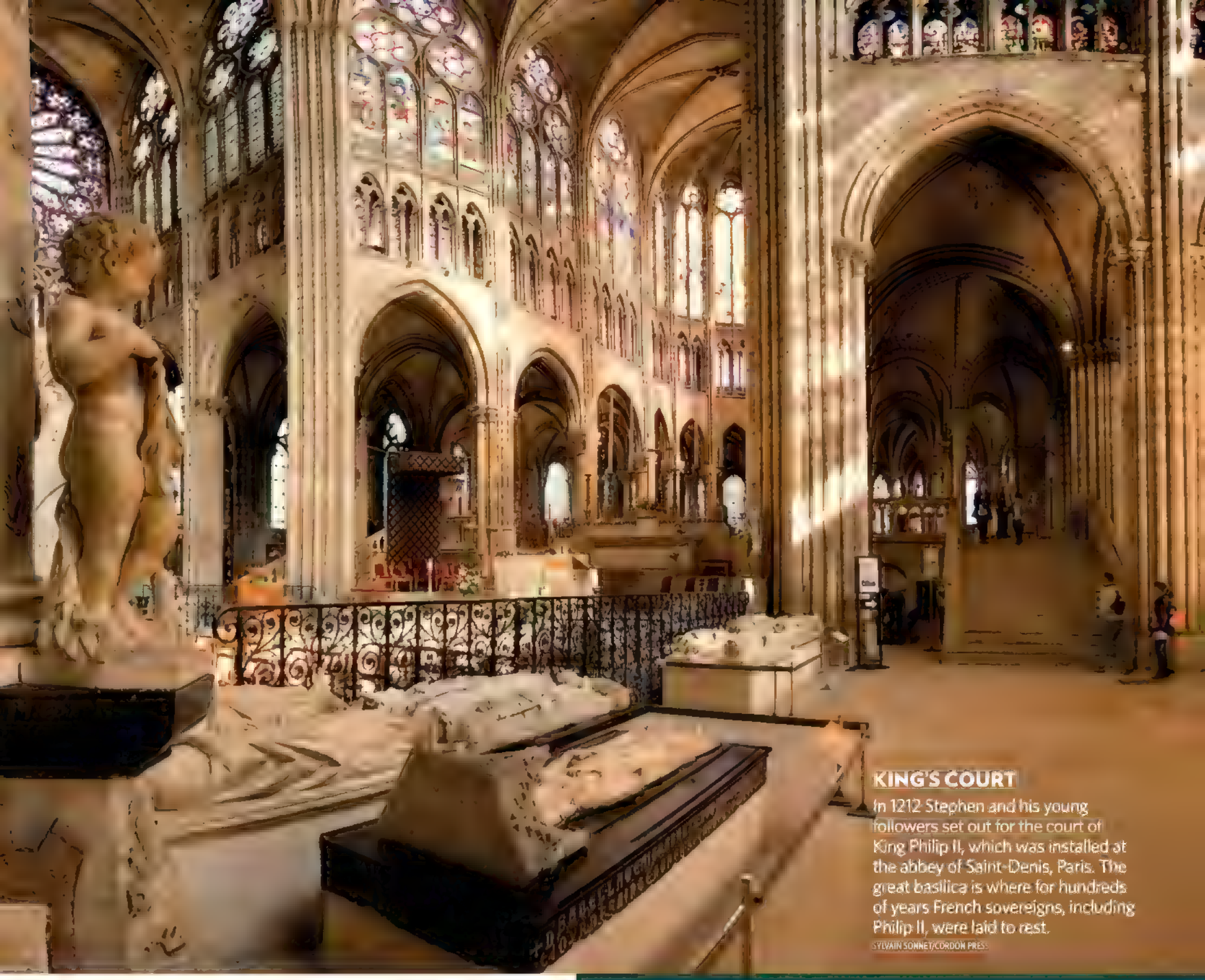
The Children's Crusade had two principal leaders: Stephen, from Cloyes (a hamlet on the Loire River in central France), and Nicholas of Cologne in Germany. A shepherd, Stephen was perhaps as young as 12 in 1212 when he rose to lead a popular religious movement.

The *Chronicon universale anonymi Laudunensi* was written by an unnamed monk from Laon in

The Latin word *pueri* in historical sources led to the popular name "Children's Crusade."

STEPHEN OF CLOYES LEADS THE *PUERI* IN A ROMANTICIZED 19TH-CENTURY ENGRAVING.

DE AGOSTINI PICTURE LIBRARY/G. DAGLI ORTI/G/ALBUM



KING'S COURT
In 1212 Stephen and his young followers set out for the court of King Philip II, which was installed at the abbey of Saint-Denis, Paris. The great basilica is where for hundreds of years French sovereigns, including Philip II, were laid to rest.
SYLVAIN SONNET/CORDON PRESS

northern France, and is one of the sources historians look to when studying the Children's Crusade. The text describes Stephen: "In the month of June [1212], a certain puer named Stephen, a shepherd by profession, from a village called Cloyes . . . used to claim that the Lord appeared to him in the guise of a poor pilgrim and accepted bread from him and entrusted to him letters to be carried to the king of the Franks."

Since Cloyes is in the diocese of Chartres, Stephen may have been to that cathedral city when Pope Innocent III visited to build support for the larger crusading efforts. Stephen began attracting followers to his self-proclaimed crusade. Laon's chronicle recounts that Stephen and a large band of pueri set out for Paris to seek an audience with the French sovereign,

QUESTIONS OF AGE

IT HAS BEEN ARGUED that the so-called Children's Crusade was not strictly made up of children. In 1977 the Dutch historian Peter Raedts argued that the Latin term *pueri* referred not only to those who were children, but also to those who were socially "small." In other words, pueri could be peasants, like Stephen and Nicholas, who belonged to the lowest echelon of society. Several sources specifically mention that adult men and women, as well as the elderly, did take part in the events of 1212. The term *pueri* could have been used to refer to male adolescents under 15 years old, which was then the legal age to marry. This definition adds teenagers to the mix. However, the word *infantes* also appears in the sources describing participants in the crusade: This term does refer unequivocally to children.

FAITH AND TRADE
A 13th-century Spanish miniature (above) depicts a merchant ship. The 1212 crusaders struck out for Mediterranean ports, hubs of European trade, and the exit point for pilgrims and official crusaders, to the Holy Land.
ORONOZ/ALBUM

Philip II, to deliver the holy letters. The king lived in the Benedictine abbey of Saint-Denis, just to the north of the city.

The arrival of the shepherd boy and his followers in Paris coincided with the annual Lendit fair, attended by merchants from all over Europe. At this time of year, Paris saw a great influx of pilgrims to the abbey of Saint Denis. Among them was Stephen: "Together with shepherds of a similar age, nearly 30,000 people flocked to him from various parts of France."

The Laon chronicler noted that "the holy boy Stephen" appeared as their "master and leader." According to another source, the 13th-century Barnwell Chronicle, written in England, the children had their sights set higher than holy war with Muslim Spain or the Cathars: "They said they needed to go [to the Holy Land] and recover the True Cross." This desire was prompted by a traumatic event that had taken place two decades previously, in 1187, when the crusaders lost the relic of the True Cross at the Battle of Hattin. Later that year, forces of the Ayyubid sultan, Saladin, took Jerusalem.

Philip II did not lend his support to Stephen or his followers. It is not clear from the sources whether he read the mysterious "letters" Stephen received, or indeed exactly what these letters said. However, the chronicler of Laon records that the king took the movement seriously enough to consult a learned group of churchmen known as the Paris Masters. His actions suggest the king was fearful of the likelihood that the presence of large numbers of poor, young people might lead to civil unrest.

The Laon scribe wrote that, on their advice, the king commanded Stephen's followers to return to their homes. Stephen's crusade ended as quickly as it began. The Laon chronicle was written very soon after the events recounted, so many historians regard as credible his claim that, following the royal order, Stephen's authority crumbled.

Interest in Stephen and his followers later aroused more speculative accounts. These include authors such as Matthew Paris, an English Benedictine monk writing more than 20 years after the event. Matthew attributes Stephen's charisma to a dangerous, Satanic magic. Another chronicler, the Cistercian monk Alberic de Trois-Fontaines, extends Stephen's story

In 1187 the crusaders lost the relic of the True Cross at the Battle of Hattin.

SALADIN'S CAPTURE OF THE TRUE CROSS IN 1187 INSPIRED THE CHILDREN'S CRUSADE. ENGRAVING FROM 13TH-CENTURY CHRONICLE OF MATTHEW PARIS
FINE ART/ALBUM

HAZARDOUS COAST

The 13th-century castle of Castelsardo looms over the rugged northwestern coast of Sardinia. Accounts that followers of Stephen of Cloyes were shipwrecked near this Mediterranean island in 1212 are considered to be apocryphal.

KREDER KATJA/AGE FOTOSTOCK

to a tragic end in which Stephen leads his followers to the Mediterranean port of Marseille. There they are tricked by two merchants, who give them free passage aboard their seven ships. Two ships sink, and the five remaining take the children to Bugia (modern-day Bejaïa, Algeria) and Alexandria, Egypt. The merchants sell the children to Muslim slavers, who then try to force them to renounce their Christianity. They remain faithful, and 18, according to Alberic, are tortured to death. One of the pueri escapes and returns to Europe to give this testimony.

Most historians consider Alberic's writings questionable. Alberic includes many of the same details as the Laon chronicler, but the events in Marseille and North Africa are not supported by any other sources of the era,

GREGORY'S INNOCENTS

ALBERIC DE TROIS-FONTAINES, a 13th-century French monk, wrote a lengthy chronicle between 1227 and 1241 that featured an entry on the Children's Crusade, but historians doubt its accuracy. He details the attempts of the *pueri* to secure passage to Jerusalem when 30,000 of them reach Marseille. Swindled by slavers, many perished when their ships sank near Sardinia. According to Alberic, Pope Gregory IX was so moved by the event that he ordered a new church, called the Church of the New Innocents, to be erected on San Pietro (an island some four miles southwest of Sardinia), where the drowned children washed ashore. Alberic reported that their perfectly preserved bodies were carried into a local church where they remained and were visited by pilgrims. Historians have searched for remnants of this church, both in ecclesiastical documents as well as archaeological sites. Solid confirmation of its existence has yet to be confirmed.

PARTING THE WATERS

Nicholas of Cologne believed the Mediterranean would open before him as the Red Sea did for Moses as depicted in a 13th-century miniature (above) from the Bible of St. Louis, held in the Cathedral of Toledo, Spain.

ORONOZ/ALBUM

placing his account more in the realm of hearsay.

Nicholas's Miracle

In parallel with Stephen's doomed crusade, another venture was taking shape in Germany, under the leadership of another charismatic youth, Nicholas of Cologne. There is some confusion in the sources as to whether Stephen's crusade influenced Nicholas, or if both movements arose spontaneously.

It is clear, however, that Nicholas, like Stephen, believed he had received orders from God to travel to Jerusalem to recover the Holy Land. His followers reportedly numbered in the thousands and included men and women, as well as the youth. They gathered in Cologne between Easter and Pentecost in 1212. Sources recorded that Nicholas and his followers carried T-shaped tau crosses, later associated with the Franciscan monastic order associated with poverty and humility. The tau emblem would also become associated with Nicholas.

The remoteness of Jerusalem did not deter Nicholas. He claimed that upon reaching the shore, the sea would part for him as it had for Moses when he led the Hebrews out of Egypt. Contemporary written sources tracked the progress of Nicholas's pueri as they moved toward the Mediterranean. On July 25, 1212, their presence was registered in the city of Speyer in southwestern Germany. From Speyer, the pueri marched south and crossed the Alps, an unimaginably difficult and dangerous route.

Weakened by hunger, exposure, and fatigue, those who did not choose to return home or who did not die along the way arrived at Piacenza in northern Italy on August 20, 2012. They had walked over 400 miles in a month. From Piacenza several thousand traveled almost 100 miles more to the port city of Genoa in Italy.

Despite their prayers, the sea did not part, and the multitude disbanded. Nicholas's leadership seems to have ended, and his ultimate fate remains undetermined. Tales abound that some pueri went by ship to Marseille, while others ended up in Rome. The ones who stayed in Genoa probably found work as a source of cheap labor. Only lasting a few short months, Nicholas's crusade was recorded as a failure, begun with earnest passion and faith and ending with exhaustion and disappointment.

Despite not reaching the Holy Land, the Children's Crusade made an indelible mark on 13th-century culture. More than 50 chroniclers recorded it; some penned a few terse lines, while others devoted pages. Because the crusade was not sanctioned by the pope, it is remarkable that both Stephen's and Nicholas's movements attracted attention that lasted for decades. One account from an Augustinian monastery in Alsace, written in 1230, describes Nicholas's 1212 venture as "a certain vain expedition, which came to pass when pueri and foolish persons snatched up the sign of the cross, without any discernment, motivated more by curiosity than concern for their salvation."

Whether the pueri were children, or peasants, or a mixture of the two, the hostility of some chronicles toward them reflects the fear that piety carried too far by the young or by the poor would lead to a breakdown in authority. Such fears later came to pass in the form of the Shepherds' Crusade of 1251. Led by an elderly Hungarian, it was linked at the time to the Children's Crusade when the chronicler Matthew Paris claimed the leader was the now grizzled Stephen of 1212 (almost certainly untrue).

Despite such fears of unrest arising from popular crusades, later chronicles also exalt the Children's Crusade. The tale that many had been shipwrecked on San Pietro island near Sardinia later prompted Pope Gregory IX to sponsor a church there. For all the troublesome nature of the Children's Crusade as it unfolded, the church soon held up the fervor of the pueri as an example to emulate.

As recruitment began in 1213 for a new crusade—the fifth, which eventually set out for the Holy Land in 1217—people were urged to follow the example of the children the year before, and offer their lives for Christ. Historians may never be fully able to separate truth from rumor and fact from fiction, but the Children's Crusade provides valuable insight into the relationship between popular movements and the church.

HISTORIAN **ENRIQUE MESEGUER** WRITES EXTENSIVELY ON MEDIEVAL HISTORY, SPECIALIZING IN THE POPULAR CRUSADES.

Learn more

The Childrens's Crusade: Medieval History, Modern Mythistory
Gary Dickson, Palgrave Macmillan, 2008.

CRUSADE'S END

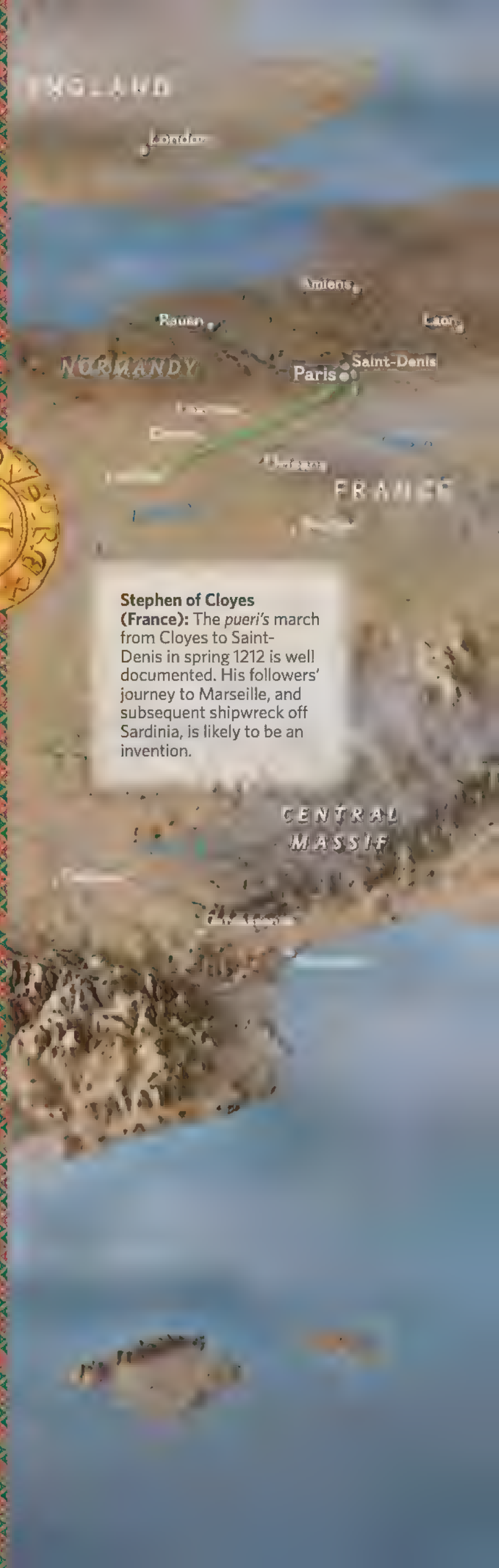
The tower [illegible] of the 12th century cathedral of San Lorenzo rises over the Mediterranean port of Genoa, Italy. Sources say this city was where Nicholas of Cologne's exhausted followers vainly waited for the waters to part and open a passage to the Holy Land.

ROMANTIC LEGENDS

Accounts of the 1212 Children's Crusade featured dramatic events, some that are now regarded as apocryphal. For centuries, romanticized retellings included these episodes, such as *The Story of the Crusades*, an English children's book from 1910:

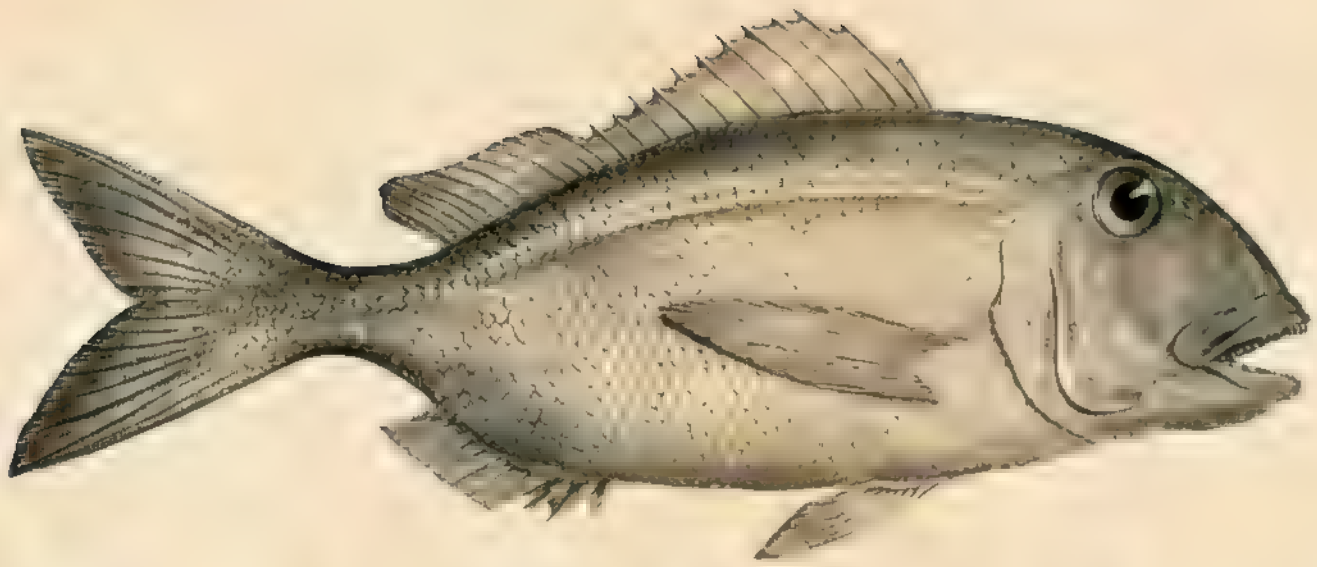
Suddenly, while Pope Innocent was vainly trying to rouse Europe to undertake a Sixth Crusade . . . boy leaders drilled their little regiments . . . and prepared seriously to go forth to the Holy War. At first they met with opposition, and ridicule; but such was the earnest zeal of these little people that even the most hardened onlooker ceased to jeer or hinder. Mothers, with aching hearts, saw their little ones march forth, and put out no hand to prevent them . . . From Germany a band of seven thousand children set out for the port of Genoa, from whence they hoped to embark for the Holy Land. They were led by a boy named Nicholas, who swayed them by the most extraordinary power . . . But to get to Genoa, they had to cross the Alps, and there cold and hunger left thousands of the poor mites dead . . . The remnant . . . made its way at length into Genoa. There they hoped . . . to cross the sea; but the citizens of the port looked with scant favour upon the little Crusaders . . . Enthusiasm was long since dead, they were laughed at, as failures, and saddest of all, when they were asked why they had left their homes, they now made weary answer that "they could not tell." Few indeed, ever saw their native land again.

19TH-CENTURY ILLUSTRATION OF THE CHILDREN'S CRUSADE. ABOVE: 13TH-CENTURY COIN FROM GENOA. ILLUSTRATION AND COIN: ALBUM



Stephen of Cloyes (France): The *pueri's* march from Cloyes to Saint-Denis in spring 1212 is well documented. His followers' journey to Marseille, and subsequent shipwreck off Sardinia, is likely to be an invention.

Nicholas of Cologne (Germany): Followers of Nicholas headed south along the Rhine in 1212, as corroborated by historical records. Their goal is the Mediterranean, where they believe the waters will part allowing them to walk to the Holy Land. Many die crossing the Alps. On arrival in Genoa, Nicholas's miracle fails to materialize, and the crusaders disperse. Many remain living and working in Genoa.



DARWIN

VOYAGE OF THE *BEAGLE*

In 1831 a young Charles Darwin embarked on a voyage to South America and then around the world. The astonishing variety of specimens he collected, and his profound reflections on the natural world, later crystallized into his revolutionary ideas about evolution.

ALISON PEARN

CHRIST'S COLLEGE, UNIVERSITY OF CAMBR DGE, WHERE DARWIN STJDIED FROM 1828 TO 1831. THE ENGRAVING IS BASED ON A PA NT NG BY I. A. BELL.
SC ENCE PHOTO L BRARY/AGE FOTOSTOCK

During August 1831 Charles Darwin, recently graduated from the University of Cambridge, was stuck at home on exactly the same principle, he complained, as a person would choose to remain in a debtors' prison. At age 22, Darwin was fascinated by the natural world and inspired by the adventure stories of the German naturalist Alexander von Humboldt, whose travels across Central and South America in the early 1800s was the basis of a series of extensive travelogues. Darwin was desperate to undertake a similar scientific odyssey. An attempt to organize an expedition to Tenerife in the Canary Islands off the coast of northwest Africa, had fallen through. The awful necessity of earning his own living, probably as the vicar of a country parish, seemed inescapable.

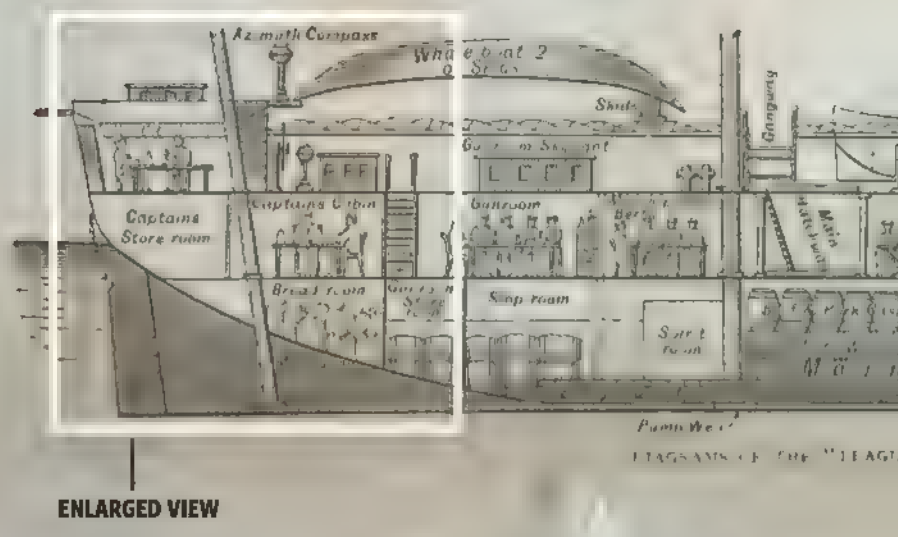
And then a letter arrived offering Darwin an amazing opportunity. The writer was one of Darwin's former teachers, John Stevens Henslow, professor of botany at Cambridge. Henslow informed Darwin that he had recommended him to accompany Captain Robert FitzRoy on

ROBERT FITZROY, CAPTAIN OF THE *BEAGLE* DURING THE 1831-36 EXPEDITION. THIS PHOTOGRAPH WAS PUBLISHED IN 1865, THE YEAR OF H S DEATH, AGE 59.
SCIENCE PHOTO L BRARY/AGE FOTOSTOCK

LIFE ABOARD THE *BEAGLE*

FIRST LAUNCHED IN 1820, the *Beagle* started life as a brig (a swift two-masted vessel), 90 feet long and 25 feet wide. It was reconditioned as a three-masted bark in 1825, and later set off to South America under the command of Pringle Stokes. Stokes died during the mission, and Robert FitzRoy took command. On the *Beagle*'s return in 1830, it was remodeled again for a second surveying expedition in which Darwin would participate (1831-36); the route would take the *Beagle* to South America and then make a circumnavigation of the globe.

THE 74-PERSON CREW for this second voyage consisted of officers, midshipmen, sailors and porters, and marines, who all formed the naval crew;

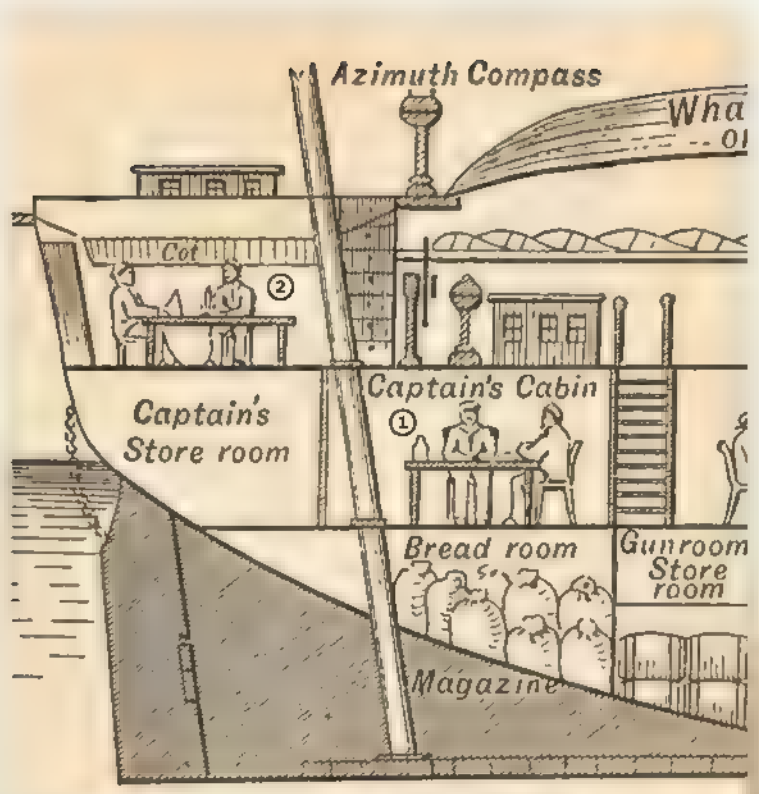


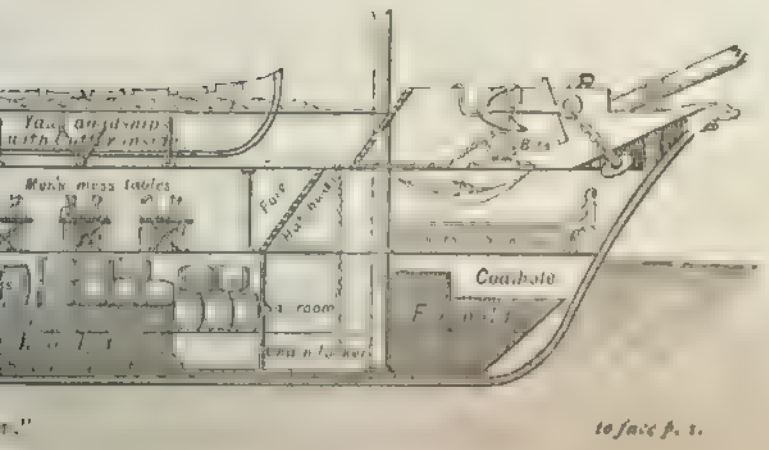
ENLARGED VIEW

in addition, there were nine noncommissioned members, including Darwin. It was a large crew for a ship of such modest dimensions, as Darwin wrote: *"The vessel is a very small one . . . but every body says it is the best sort for our work . . . The want of room is very bad, but we must make the best of it."*

DARWIN SPENT most of his time in the stern where ① Captain FitzRoy's cabin was located. ② Darwin's cabin was outfitted with a folding bunk and bookshelves. He also had a chest in which to store the samples collected ashore. Darwin soon felt at ease on the *Beagle*. He wrote in February 1832: *"I find to my great surprise that a ship is singularly comfortable for all sorts of work. Everything is so close at hand, & being cramped, make one so methodical, that in the end I have been a gainer. I already have got to look at going to sea as a regular quiet place, like going back to home after staying away from it."*

ILLUSTRATION: SCIENCE PHOTO LIBRARY/AGE FOTOSTOCK





THE *BEAGLE* OFF THE COAST OF TIERRA DEL FUEGO IN 1834. IN A PAINTING BY CONRAD MARTENS.
AKG/ALBUM

SAMPLE CASE WITH MOLLUSK SHELLS COLLECTED BY DARWIN FROM VARIOUS LOCATIONS DURING HIS TRIP. NATURAL HISTORY MUSEUM, LONDON

SCIENCE PHOTO LIBRARY/AGE FOTOSTOCK

an expedition aboard the H.M.S. *Beagle*. He wrote: "I state this not on the supposition of yr. being a finished Naturalist, but as amply qualified for collecting, observing, & noting any thing worthy . . . in Natural History."

Robert FitzRoy was an aristocratic but mercurial naval captain. In 1826 he had set off as a crew member on the *Beagle* to carry out a survey of South America. In the course of the voyage, he was placed in command of the expedition, from which he returned in 1830. The letter from Henslow to Darwin was written as FitzRoy was under instructions from the Admiralty to mount a second survey expedition to Tierra del Fuego, an archipelago at the tip of South America. The primary motive of the voyage was to chart the coast of South America. A secondary motive was scientific exploration. FitzRoy wanted a naturalist aboard, both to carry out scientific work and to keep him company.

Despite Henslow's recommendation, however, Darwin's place was not immediately assured. FitzRoy's first impression of the young naturalist was not entirely favorable. Darwin's father expressed skepticism at the expense and dangerous nature of the venture. The *Beagle* was the overcrowded home to a total crew of 74. Shipwreck was a common hazard, death through disease an

A MAN OF LETTERS

DURING THE *BEAGLE*'S VOYAGE, Darwin famously amassed a huge scientific collection of plants and animals, but another important legacy is his prolific and detailed correspondence with family and friends. The letters reflect Darwin's mood over the five years of the voyage and—despite the ups and downs—suggest he was never disheartened. His words to his loved ones also expose the man behind the scientist. His humanity and personality quirks are on full display—from delighting in his private cabin on the ship to asking his sisters to mail him more "Prometheans," or matches.

DARWIN'S SEXTANT FROM THE VOYAGE ABOARD THE *BEAGLE* ROYAL GEOGRAPHICAL SOCIETY, LONDON

BRIDGEMAN/AC

To Catherine Darwin, Charles's sister
Río de la Plata, May 1833

And it appears to me, the doing what little one can to encrease the general stock of knowledge is as respectable an object of life, as one can in any likelihood pursue . . . Think of the Andes; the luxuriant forest of the Guayquil; the islands of the South Sea & new South Wale. How many magnificent & characteristic views, how many & curious tribes of men we shall see.—what fine opportunities for geology & for studying the infinite host of living beings: is not this a prospect to keep up the most flagging spirit? If I was to throw it away; I dont think I should ever rest quiet in my grave; I certainly should be a ghost & haunt the Brit: Museum.

GREAT BARRIER REEF, AUSTRALIA. DRAWING BY CONRAD MARTENS

SCIENCE PHOTO LIBRARY/AGE FOTOSTOCK

90°

60°W

NORTH AMERICA
EUROPE
ASIA
AFRICA
SOUTH AMERICA
AUSTRALIA

Voyage of H.M.S. *Beagle*
1831-36

Galápagos Islands

EQUATOR

0°

1832

1.

Lima

SOUTH AMERICA

Salvador

PACIFIC OCEAN

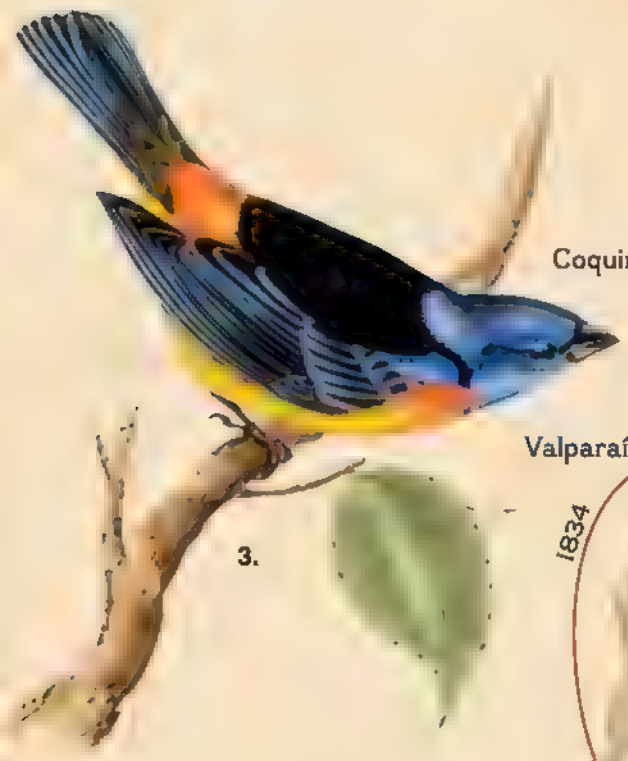
1835

D E S

Atacama Desert

2.

Rio de Janeiro



3.

Coquimbo

Darwin's overland routes are indicated by gray, dashed lines

Montevideo

ATLANTIC OCEAN

30°S

Valparaíso

Santiago

1834

Buenos Aires

Río de la Plata

Pampas

E S

Bahía Blanca

1832

Puerto Deseado

Río Santa Cruz

Falkland Islands

Tierra del Fuego

1833

Beagle Channel

Cape Horn

4.

60°S

ILLUSTRATIONS FROM *THE ZOOLOGY OF THE VOYAGE OF H.M.S.* BEAGLE (1838-1843)

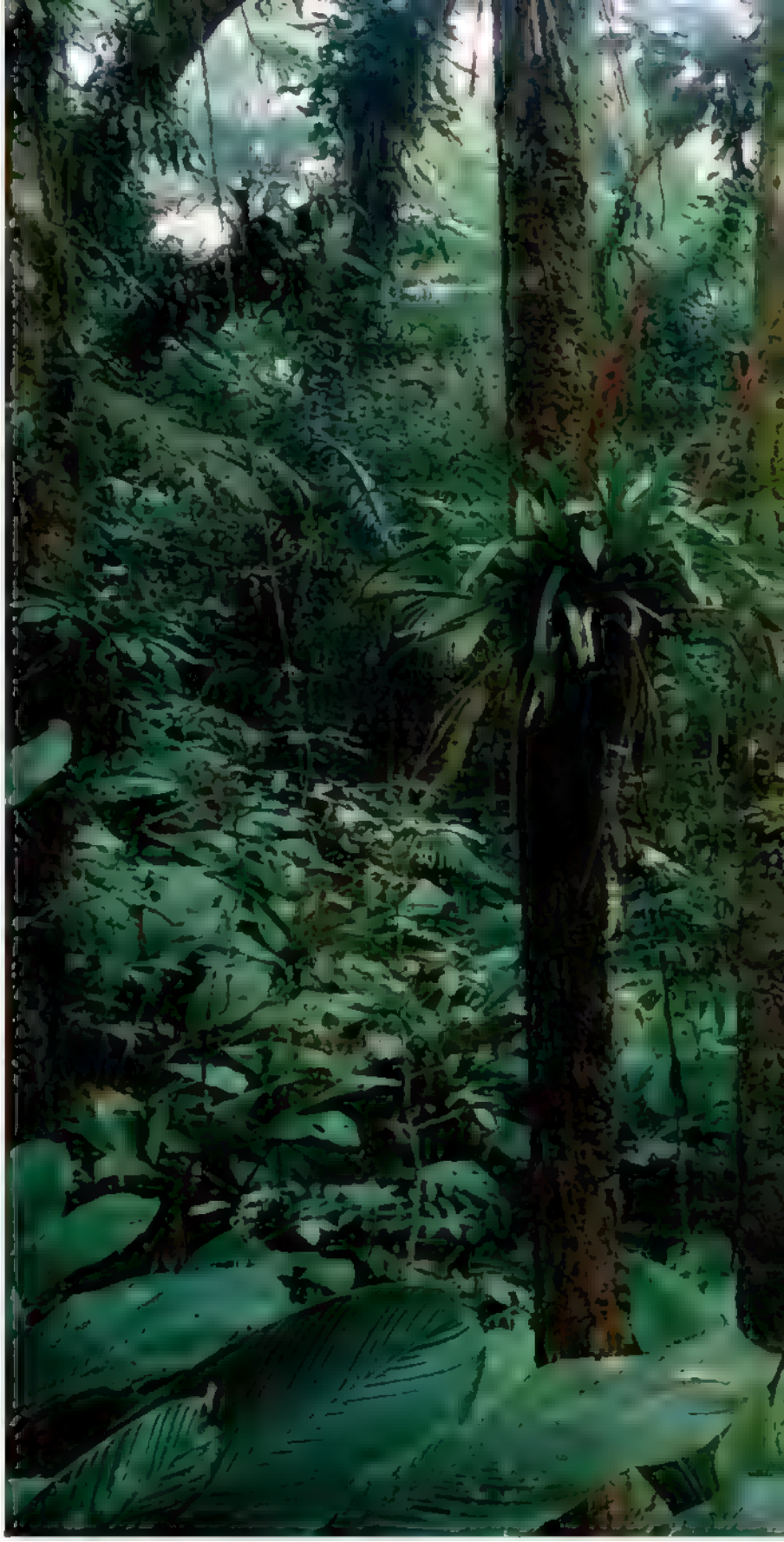
1 GRAY LEAF-EARED MOUSE *(GRAOMYS GRISEOFLAVUS)* FOUND IN SOUTH AMERICA
2. MEDIUM GROUND FINCH *(GEOSPIZA FORTIS)* OBSERVED IN THE GALÁPAGOS
3 BLUE AND YELLOW TANAGER *(THRAUPIS BONARIENSIS)*
4 H.M.S. *BEAGLE*

ILLUSTRATIONS: SCIENCE PHOTO LIBRARY/AGE FOTOSTOCK
MAP: CHARLES W. BERRY/NGS

0 km 750

SCALE AT THE EQUATOR

PRESERVED LIZARDS COLLECTED BY DARWIN DURING THE *BEAGLE* VOYAGE. NATURAL HISTORY MUSEUM, LONDON
SCIENCE PHOTO LIBRARY/AGE FOTOSTOCK



REPTILIAN RELATIONSHIPS

ON APRIL 18, 1835, Darwin wrote a long letter from Valparaíso (Chile) to his friend and former teacher, the botanist and geologist John Stevens Henslow. He described the local lizards and invited his colleagues' opinions. Darwin's methodical approach to research and his generosity and openness to academic cooperation is on full display: *"I also send a small bottle with 2 Lizards: one of them is Viviparous, as you will see by the accompanying notice."* Darwin had heard of a French scholar who had found a similar lizard, so he urged his friend to *"hand over the Specimens to some good Lizardologist & Comparative Anatomist to publish an account of their internal structure."*

even greater one, and much of South America was lawless. To try to convince his father, Darwin sought help from his mother's brother, the industrialist Josiah Wedgwood II. Wedgwood's daughter Emma had been a childhood friend of Darwin's, and the two first cousins would later marry, in 1839.

In the end both FitzRoy and his father were persuaded that he should go, and on December 27, 1831, the *Beagle* sailed out of Plymouth with Darwin on board. Originally planned for two years, the voyage stretched to five, and took Darwin not only to South America but to Tahiti, Australia, New Zealand, Africa, and many of the Atlantic and Pacific islands in between. Darwin often left the ship to travel hundreds of miles on horseback.

FOREST OF DELIGHT

In a letter to his friend Frederick Watkins in 1832, Darwin describes his encounter with the "luxuriant vegetation" of a Brazilian rainforest: *"The brilliancy of the Scenery throws one into a delirium of delight."*

LUCIANO CANDISANI/AGE FOTOSTOCK

In the course of this extraordinary journey, he filled notebook after notebook with sketches and observations. Darwin shipped home barrels, boxes, and bottles by the dozen, filled with pressed plants, fossils, rocks, skins, and skeletons. He explored landscapes that ranged from the gray desolation of the Falklands to the glorious heights of the Andes, from the wild glaciated cliffs of the Beagle Channel to the beaches of Tahiti, from the tropical lushness of Rio to the dripping rainforest of southern Chile.

Early Observations

First landfall was the volcanic island of St. Jago (now Santiago) in the Cape Verde Islands. After three weeks of seasickness, Darwin threw himself enthusiastically into his first independent fieldwork, identifying rock samples and recording a cross section of the volcanic strata. He had the best equipment he could buy: a microscope, a clinometer for measuring angles, geological hammers, and a vasculum (a container for botanical specimens), but he was still a novice. He boasted in a letter to his Cambridge teacher, John Stevens Henslow, that his discovery of a color-changing octopus "appears to be new." It wasn't, and Henslow gently disabused him.

DARWIN EXPLORED ALL KINDS OF LANDSCAPES, FROM THE DESOLATION OF THE FALKLAND ISLANDS TO THE ANDEAN PEAKS AND THE PARADISIACAL BEACHES OF TAHITI.

COLLECTORS' ITEMS
In the course of his voyage, Darwin gathered hundreds of plant specimens, many which were entirely new to British naturalists. A moss specimen (left) was collected by Darwin in Tierra del Fuego, Chile, in 1833. Natural History Museum, London

MARY EVANS LIBRARY/NATURAL HISTORY MUSEUM/AGE FOTOSTOCK

By February 15, 1832, they were resupplying on the remote rocky islets of St. Paul's, and two weeks later, the *Beagle* crossed the Equator and reached the coast of Brazil. Darwin, however, injured in the final leg of the journey, was forced to stay on board, so it was April before he first set foot in South America, at Botafogo Bay near Rio de Janeiro.

For the next few months as the crew of the *Beagle* sailed up and down the coast checking and rechecking naval charts, Darwin stayed ashore, happily exploring the Corcovado mountains near Rio, shifting from geology to zoology and building an impressive collection of spiders and wasps.

The ship went south again at the end of June. This time he went, too, encountering porpoises, whales, penguins, and seals. The expedition dropped anchor at the end of July at the mouth of the majestic Río de la Plata. Both Montevideo on the north bank, where they helped put down a revolt, and Buenos Aires on the south bank, where they were fired on as suspected cholera-carriers, were dangerous places. The flat and empty landscape seemed to Darwin a poor exchange for the lushness of the tropics.

Moldy Mice

All the while, Darwin's collections were annoying the ship's purser who complained about the clutter. Darwin had already learned some taxidermy, and now experimented with other ways of preserving unfamiliar specimens using wax, spirits, and thin sheets of lead—with mixed results.

The first letters from home brought criticism and advice from Henslow, on whose doorstep Darwin's treasures were landing. It is another reminder of how Darwin's voyage was a learning experience: His labels weren't securely fixed, beetles had been crushed, mice had gone moldy, and one mystery bottle looked like "the remains of an electric explosion, a mere mass of soot."

By September 1832 they were surveying the coast of Argentina. Already a good shot, Darwin learned to use a bola (a weighted lasso) to bring down ostriches and took time off from "admir-

AZURE AND WHITE

A splash of azure—of the kind Darwin noted, is reflected in a bay in Tierra del Fuego, Chile. The Darwin mountain range, named for the young naturalist by Captain FitzRoy in 1834, rises above it.

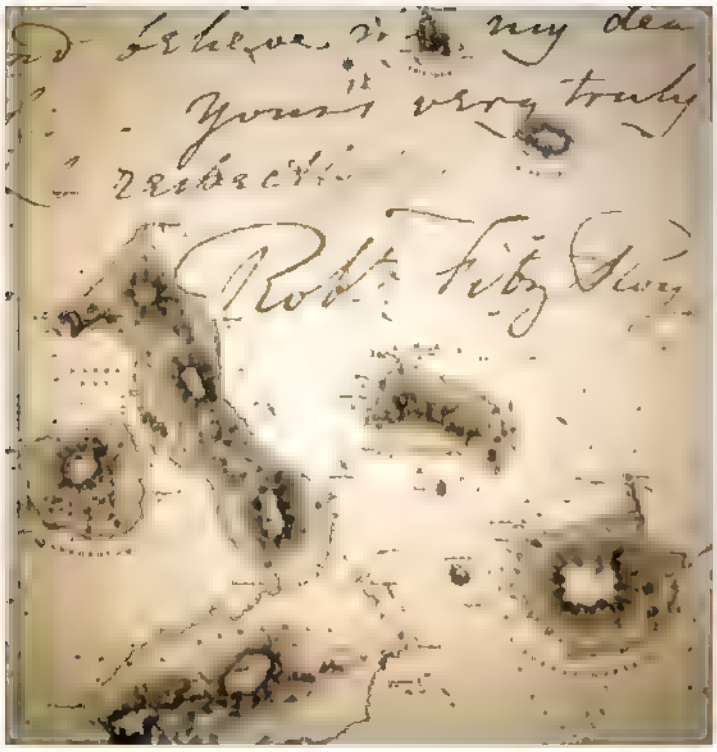
PETER ESSICK/NGS

ing the Spanish ladies" to discover his first large fossilized vertebrate—a *Megatherium*, an extinct species of giant ground sloth. Darwin's curiosity was piqued by its similarity to a species of agouti, a rodent native to South America. In November he returned to Buenos Aires to restock for the voyage to Cape Horn.

A year after leaving home, the *Beagle*, like the *Endeavour* of Captain Cook and Joseph Banks before it, finally anchored in the Bay of Good Success on the coast of Tierra del Fuego. It was magnificent but inhospitable country. They spent Christmas on Hermit Island, just west of the cape, but were repeatedly beaten back by gales. One of their whaleboats was smashed against the ship in a storm, and Darwin lost notes and specimens.

LANDSCAPES AND VISTAS

DARWIN'S LETTERS recorded his astonishment and awe at the beautiful landscapes he experienced on his five-year voyage. In an 1833 letter to his sister Caroline, he wrote: *"[T]he* Beagle *will sail in a few days for Monte Video. It is now four months since my last letter so I will write a journal of everything that has since happened . . . Part of the way [through Tierra del Fuego] was by means of an arm of the sea, which connects the Atlantic & Pacific. Some of the scenes, from their retirement, & others from their desolate air, were very grand. Glaciers descend to the water's edge; the azure blue of the ice, contrasted with the white snow, & surrounded by dark green forests were views as beautiful as they were novel to me."*



ADMIRALTY MAP OF THE GALÁPAGOS PREPARED FROM DATA PROVIDED BY CAPTAIN ROBERT FITZROY, WHOSE SIGNATURE AND INSCR PTION APPEAR AT THE TOP

SC ENCE PHOTO L BRARY/AGE FOTOSTOCK

After arriving at Ponsonby Sound, FitzRoy and some of the crew, including Darwin, headed off in two of the ship's boats on a 300-mile round trip to chart the farther reaches of the Beagle Channel, named for FitzRoy's first adventures there. It was spectacular country. Darwin's letters home glitter with descriptions of the glaciers' beauty. But they were dangerous as well: When a large sheet of ice crashed into the water sending a surge along the shore toward their boats, it was Darwin who led the desperate race to drag them to safety. FitzRoy named the place Darwin Sound in his honor.

Foiled in their attempt to round the cape, they sailed east and on March 1, 1833, arrived at the Falkland Islands where the navy was keen to discover safe harbors. Concerned that the *Beagle* crew alone could not complete their mission, FitzRoy bought another boat: the *Adventure*. Both ships returned in April to Montevideo, where Darwin set off on his first long inland expedition, accompanied by the *Beagle*'s cabin boy, Syms Covington, whom Darwin had hired as combined servant and research assistant. They did not rendezvous with the ship until September, in Buenos Aires.

Rounding the Cape

Both the *Beagle* and the *Adventure* headed south in December, retracing the route of the previous year as far as Tierra del Fuego. There, Darwin finally found something he had been looking for: a new species of rhea (originally named *Rhea*

OUT OF THEIR SHELL

[illegible] at dawn on Isabela Island in [illegible] archipelago in the Pacific. Darwin [illegible] by the large number and variety of these animals. Living for a century or more, they are native to the remote archipelago, to which they have given their name: *galápago*, a Spanish word meaning "tortoise."

[illegible]

THE SMALLER RHEA WAS IDENTIFIED BY DARWIN IN TERRA DEL FUEGO AND WAS ORIGINALLY NAMED *RHEA DARWINII*. DARWIN MADE THE IDENTIFICATION IN THE COURSE OF EATING A SPECIMEN ABOARD THE *BEAGLE*. HE AND OTHER CREW MEMBERS HAD THOUGHT IT WAS A YOUNG OSTRICH.

NATURAL HISTORY MUSEUM/BRIDGEMAN/ACI

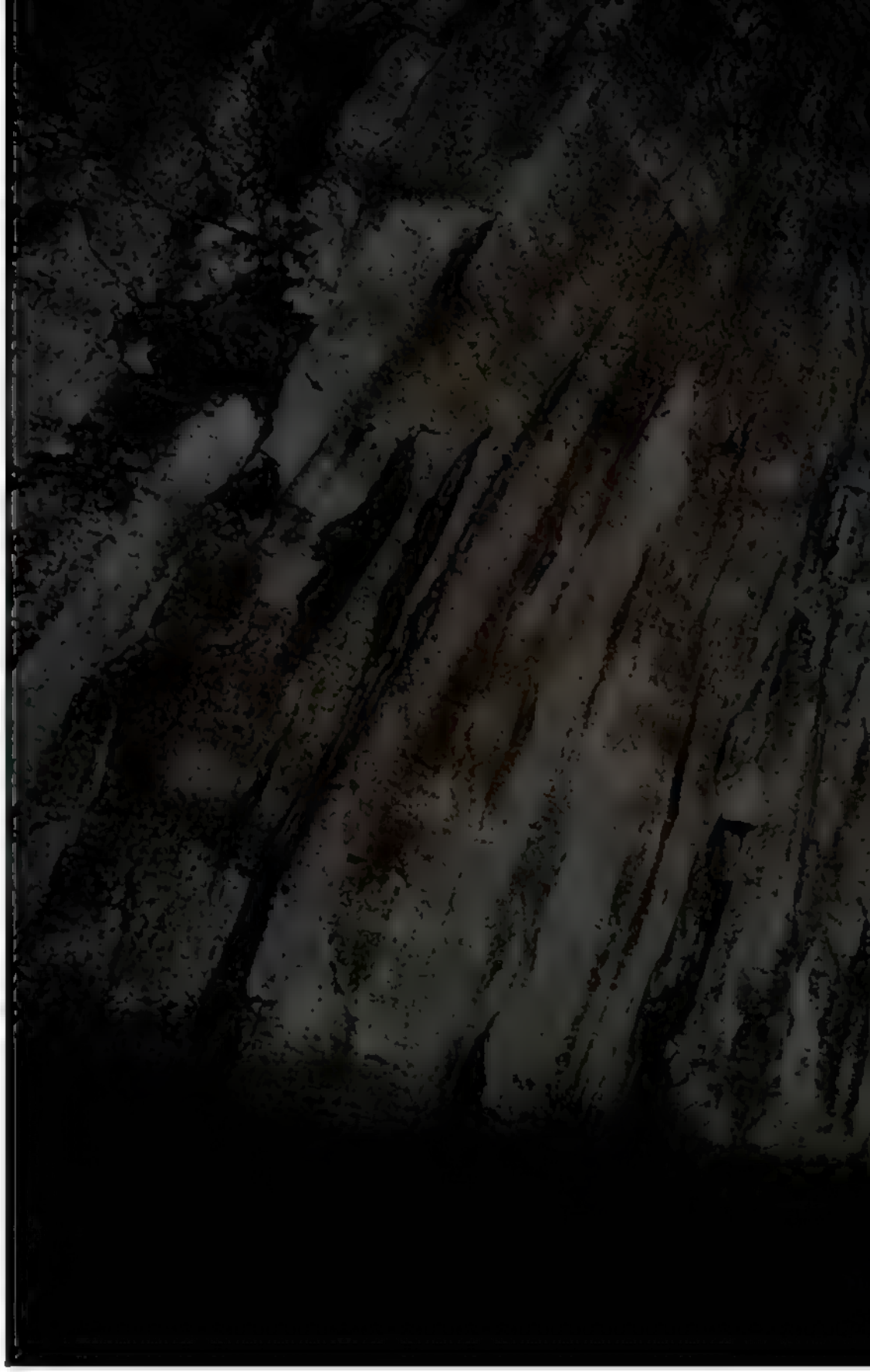
darwinii), an ostrich-like bird—but only after half of it had been eaten for the crew's dinner.

By March 1834 they were once again forced to head back to the Falklands without rounding the cape. The *Beagle*'s keel had been badly damaged, so by the middle of April it was beached at the mouth of the Rio Santa Cruz for repairs. FitzRoy took advantage of the opportunity to mount an expedition upriver. They rowed and dragged the boats 140 miles through uncharted territory. It took three weeks to go up and three days to sail back down, Darwin all the while was adding to his observations.

After the *Beagle* was repaired, it made a third attempt to round the cape. Perhaps the third time was the charm, because this time they made it. In June 1834 the expedition finally reached the west coast of South America.

The next year was spent following the coastline of Chile and Peru in much the same manner as the previous two and a half years had been spent in Brazil, Uruguay, and Argentina: The *Beagle* followed a switchback course, surveying and resurveying the complex archipelago of the coastline.

DARWIN'S ROUTE OVERLAND THROUGH CHILE WAS LARGELY UNCHARTED. LOCAL PEOPLE DREW MAPS, ADVISED ON SAFE ROUTES, AND HELPED HIM HIRE GUIDES AND HORSES.



Darwin loathed the incessantly dripping and impenetrable temperate rainforest of southern Chile, and was frequently absent organizing his own inland expeditions. He traveled southeast through the Andes from the colonial elegance of Valparaíso to Santiago. It was largely uncharted, so he relied on the help of locals who drew maps, advised on safe routes, and helped hire guides and horses. One looked after him for several weeks when he fell dangerously ill, probably with typhoid fever. Meanwhile FitzRoy felt isolated, overworked, and depressed. The Admiralty's unwillingness to shoulder the cost of the *Adventure* forced him to sell the ship, after which he threatened to resign. The future of the voyage hung in the balance.

SLEEPING LION
The Galápagos archipelago can be found 600 miles west of Ecuador. Not only home to abundant wildlife, it is also home to striking rock formations, such as the Sleeping Lion (also called Kicker Rock) near San Cristóbal Island.

MATTIAS KLUM/NGS

Darwin made one more major land expedition, traveling 220 miles from Valparaíso through the Andes to Coquimbo and Copiapó, before rejoining the *Beagle* to sail to Iquique in Peru. From Lima they sailed west at the end of July 1835 and arrived at the Galápagos archipelago in mid-September.

They spent five weeks exploring the islands, each with its own distinctive flora and fauna. Darwin, still months from forming even a rudimentary theory on how species might evolve over time, filed new facts away with each species he came across. Although the Galápagos, and their finches and great tortoises are closely connected in the popular imagination with the origins of his ideas about species change, Darwin did not conceive of his famous hypothesis on that visit.

Darwin's observations on this trip led to a different grand, scientific theory. In the Andes, in the Uspallata Pass, he had noticed something curious: fossilized trees that he realized must once have been submerged in the sea. The question in Darwin's mind was how had they been raised so high up in the mountains.

On January 19, 1835, while Darwin was exploring inland, the *Beagle* crew had witnessed the eruption of the Osorno Volcano in Chile. A month later, farther up the coast, an earthquake struck and caused a tidal wave. Darwin began to speculate that the events might be connected. FitzRoy reviewed earlier soundings and confirmed the height of the land had changed. Armed with this information, Darwin proposed a theory of

GALÁPAGOS FINCHES. LITHOGRAPH FROM *ZOOLOGY OF THE VOYAGE OF H.M.S.* BEAGLE, PUB. 1838-1843

SCIENCE PHOTO LIBRARY/GETTY IMAGES

BIRDS OF SOUTH AMERICA

THE BEGINNINGS OF Darwin's theory of evolution have been traced by some authors to his study of finches in the Galápagos. The differentiation that existed between the birds of each island demonstrated how the species evolved according to the particular environment. Today, however, many believe that Darwin only came to these conclusions some time after returning to England and seeing the results of new experiments with bird breeding. The samples of finches brought from the Galápagos turned out to be badly labeled, so once back in London, Darwin found it hard to identify them.

continental-scale fall and uplift, with tiny changes working over eons to create dramatic landscapes like those in the Andes.

With this in mind, when they arrived in Tahiti and Darwin saw his first coral reef, he proposed a brilliant new solution to the mystery of how such reefs were formed. His letters describing his ideas were, unbeknownst to him, appearing in scientific journals, and he would return with an already established scientific reputation. But he wasn't home yet. As they

CORAL SAMPLE COLLECTED BY CHARLES DARWIN DURING HIS TRIP TO THE COCOS ISLANDS, NORTHEAST OF AUSTRALIA, IN APRIL 1836

SCIENCE PHOTO LIBRARY/AGE FOTOSTOCK

DARWIN IN PARADISE

"At Tahiti, we staid 10 days, & admired all the charms of this almost classical Island," wrote Darwin in a letter to his sister Caroline in December 1835. Tahiti's coral reefs prompted Darwin to formulate a theory of their formation.

DEA/AGE FOTOSTOCK

sailed west from the coast of Africa, FitzRoy had found errors in the very first charts they had made, and diverted across the Atlantic to resurvey the coast of Brazil.

The *Beagle* finally docked at Falmouth on October 2, 1836. Darwin never left Britain again, but he maintained a robust correspondence with his colleagues all over the world about the work done on the voyage. He went on to publish more than 20 articles from his notes and diaries written aboard the *Beagle*. He published books, became a best-selling travel writer, and a leading scientist.

The work of identifying hundreds of specimens was parceled out to others, many of whom became lifelong friends and colleagues. Although not conceived during the voyage, Darwin's ideas about species change were born not only out of his encounters with so many different plants and animals (including humans), but, most importantly, through the opportunity to see them in all the complexity of their shared habitats. Many years later, Darwin had no hesitation in declaring the voyage of the *Beagle* the single most important event of his life.

ALISON PEARN IS ASSOCIATE DIRECTOR OF THE DARWIN CORRESPONDENCE PROJECT, UNIVERSITY OF CAMBRIDGE, ENGLAND.

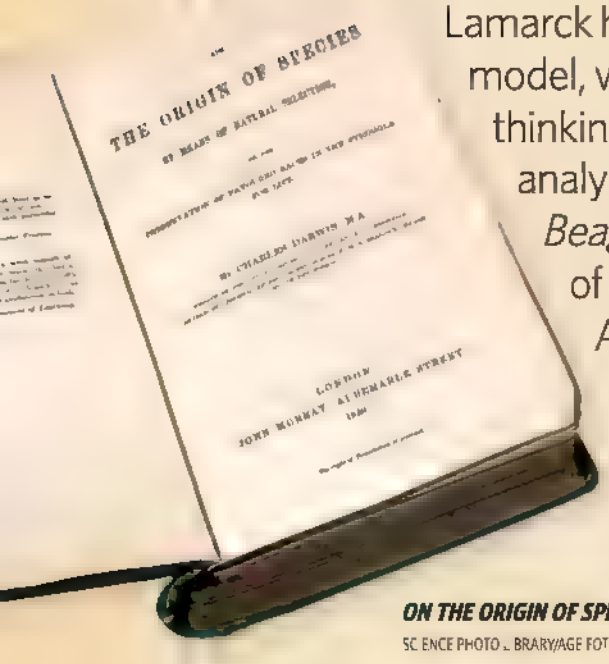
Learn more

BOOKS

The Voyage of the Beagle: The Illustrated Edition of Charles Darwin's Travel Memoir and Field Journal
Charles Darwin, Zenith Press, 2015

DARWIN'S FOSSILS

Various factors over time influenced Darwin to formulate the theory of evolution. The 19th-century French scientist Jean-Baptiste Lamarck had proposed an evolutionary model, which shaped Darwin's early thinking. In addition to his voluminous analysis of specimens from the *Beagle* voyage, his study of fossils of extinct animals found in Argentina also helped form his revolutionary idea that he would explain in his work *On the Origin of Species*.



ON THE ORIGIN OF SPECIES, TITLE PAGE OF THE 1859 FIRST EDITION.
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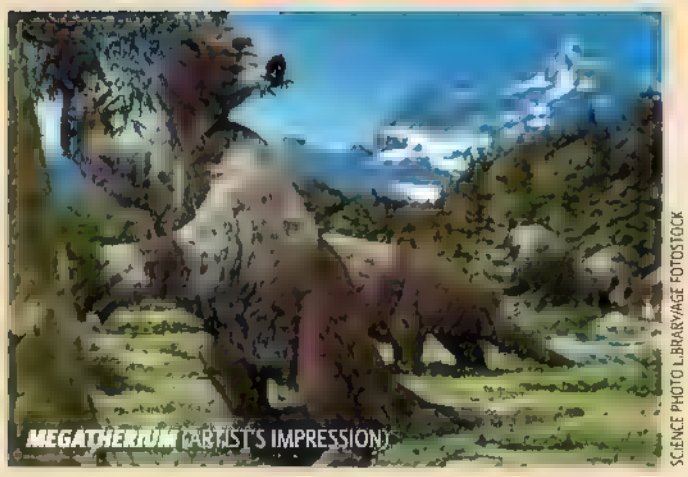

MEGATHERIUM (ARTIST'S IMPRESSION)
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MACRAUCHENIA (ARTIST'S IMPRESSION)
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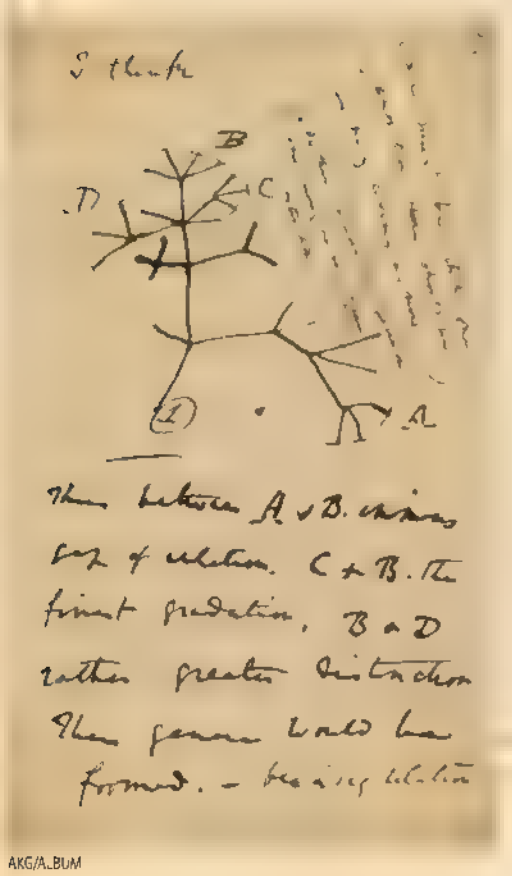
EVOLUTION OF A THEORY

IT IS LIKELY that during his trip aboard the *Beagle* Darwin may have already been beginning to sketch a first outline of his theory of evolution. Immediately after returning to London, he began to work on the theory in earnest, albeit secretly, in his private notebooks. He drafted a first brief treatise that he kept hidden for fear of the scandal it would provoke. As early as 1837 (a year after his return on the *Beagle*), he drew a "tree of life" (left) to illustrate the evolution—or "transmutation" as he then termed it—of species. It was not until 1859 that Darwin published the final version of his theory, spurred to do so by the publication of similar ideas by the English naturalist Alfred Russel Wallace.



AKG/ALBUM

GLYPTODON (ARTIST'S IMPRESSION)
A.AMY/ACI

TOXODON (ARTIST'S IMPRESSION)
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DARWIN'S INSPIRATION

The systematic, scientific study of fossils began with the French scholar Georges Cuvier. In the 1790s Cuvier studied a giant skeleton, the size of an elephant, that had been found in 1788 near Buenos Aires and then transferred to Madrid. Based on drawings that were sent to him, Cuvier baptized the skeleton *Megatherium americanum* and argued that this extinct animal had once been a giant member of the sloth family that had gone extinct. Cuvier rejected the early ideas of evolution as proposed by Jean-Baptiste Lamarck.

DARWIN'S TRAVELS

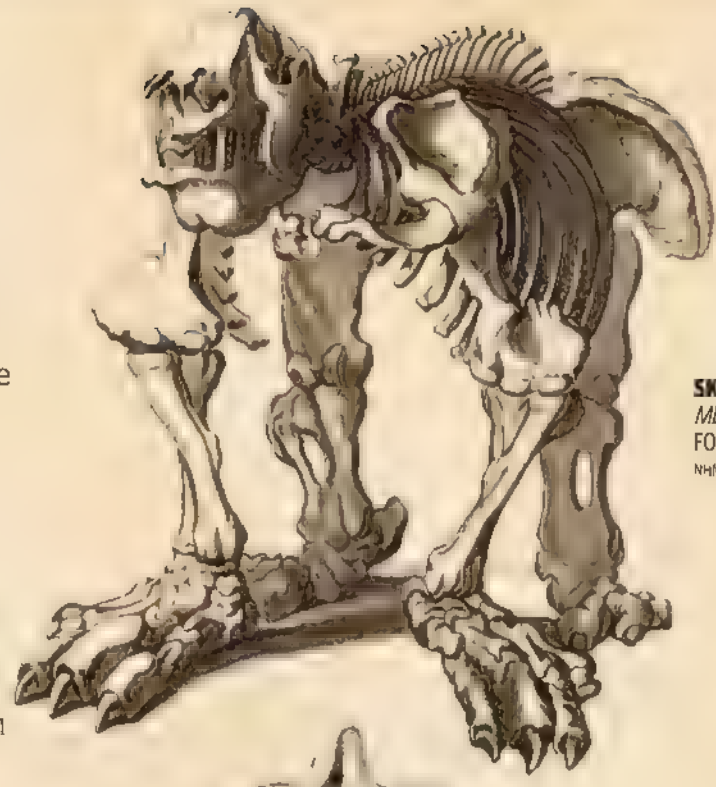
During his treks through Argentina, Darwin found numerous fossils of what he referred to as "antediluvian animals." These animals would have lived before the biblical flood, which many people at the time considered a historic event. He wrote to his sister Caroline in 1832: "I have been wonderfully lucky, with fossil bones . . . I found parts of the curious osseous coat, which is attributed to the *Megatherium*." Other bones, he surmised, belonged to a giant extinct "armadillo . . . the living species of which genus are so abundant here."

DARWIN'S FRIEND

Darwin shared fossils with paleontologist Richard Owen, who confirmed that some were indeed *Megatherium* fossils. Owen named one of Darwin's fossils *Macrauchenia*, a large, extinct animal with a long neck. Owen recognized the fossils of Darwin's "giant armadillo" from other descriptions by naturalists, and settled on the name *Glyptodon*. Owen confirmed that Darwin had found the head of a *Toxodon*, an extinct species of large mammal that had already received its name from other naturalists.

DARWIN'S CONCLUSIONS

Thanks to fossils, scientists knew animal species, now extinct, existed in times very remote from today. This idea of the very long timescale of natural history helped shape Darwin's hunch that animal species evolve from each other and therefore change over time. Darwin recognized how the fossils he found influenced him. The species variation he noted across South America, he believed, "could only be explained on the supposition that species gradually became modified." The idea "haunted" him, and has fascinated humanity ever since.



SKELETON OF A *MEGATHERIUM*, FOUND IN 1788
NHM/BR DGEMAN/AC.

VERTEBRA OF A *MACRAUCHENIA PATACHONICA*
NHM/BR DGEMAN/ACI

SKELETON OF A *GLYPTODON CLAIPES*, NATURAL HISTORY MUSEUM, LONDON
SPL/AGE FOTOSTOCK

SKULL OF A *TOXODON PLATENSIS*
SPL/AGE FOTOSTOCK

Calpeia: Modern Woman of Gibraltar

The reconstruction of a skull found in Gibraltar has revealed the face of a woman who lived over 7,000 years ago. Studies reveal that her origins lay far from the Rock, shedding light on the complex migratory routes of the Neolithic.

In 1996 archaeologists ventured into a cave in Gibraltar, where they found a burial containing human bones. Among them was a skull.

The archaeologists knew that the burial was very old. It was discovered under layers of sediment containing fish, bird, and mammal bones and carved flint objects. The skull had been damaged after the burial, but it still joined the collection of the Gibraltar National Museum.

The skull's age remained a mystery for many years. In 2019 the results of a landmark study proved through DNA analysis that it belonged to a woman who lived 7,500 years ago, making it the oldest remnant of a modern female woman found in Gibraltar to date.

Analysis also revealed that the skull's genetic ancestry lay far east of the Iberian Peninsula. The presence of genes from across the Mediterranean gave archaeologists new clues about how ancient humans traveled when agriculture was spreading through Europe.

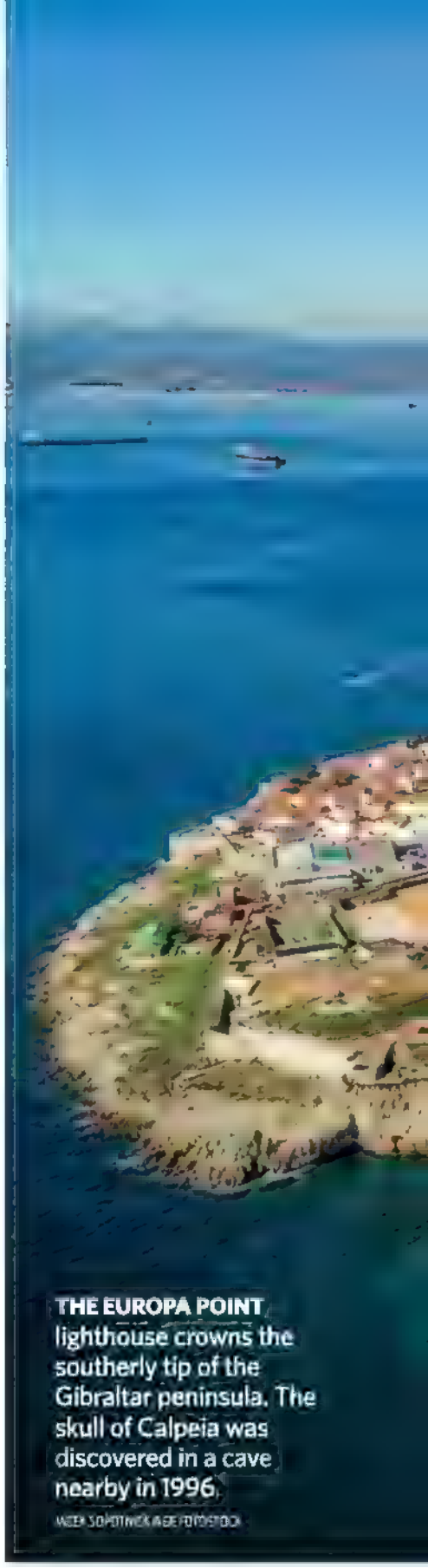
The Gibraltar National Museum team worked to create a forensic anatomical reconstruction of her face. Computers scanned its broken bones and utilized 3D cloning and restitution programs to re-create missing and damaged portions, including the jaw. Combining the data from the scans with the genetic analysis, a team at the museum spent six months to create her striking, lifelike visage. The model was named Calpeia by researchers, who were inspired by the classical term for Gibraltar, known in ancient times as Mons Calpe.

Rock of Humanity

Situated at the southern tip of the Iberian Peninsula, Gibraltar is no stranger to the presence of ancient hominid remains. Numerous exciting discoveries from Gibraltar have shed light on early human history. Gibraltar, British since the 18th century, lies within sight of Morocco across the Strait of Gibraltar at the gateway to the Mediterranean Sea.

Just under 1,400 feet high, the limestone outcrop is riddled with an extensive cave network that has offered shelter to humans, and their hominid cousins, for tens of thousands of years.

Calpeia's burial was found in a cave at Europa Point,



THE EUROPA POINT lighthouse crowns the southerly tip of the Gibraltar peninsula. The skull of Calpeia was discovered in a cave nearby in 1996.

MARK SOBOTTWICK/AGE FOTOSTOCK

HUMAN SKULL FOUND IN A CAVE AT EUROPA POINT, GIBRALTAR, IN 1996

MANUEL JAÉN

1996
Buried among fish and other animal bones, ceramic objects, and carved flints, a damaged human skull is recovered from a cave at Europa Point, Gibraltar.

2018
Genetic analysis finds the skull belonged to a woman who lived around 5400 B.C. The results will be published in *Science* the following year.

2019
A lifelike reconstruction of the ancient woman's face is created in the Gibraltar National Museum and is named Calpeia.

located at the southernmost tip of the peninsula. Nearby lies the Gorham's Cave Complex, a UNESCO World Heritage site, once home to Gibraltar's Neanderthal population, who are of special interest to archaeologists. An extinct form of humans, Neanderthals were living in these caves as recently as 32,000 years ago.

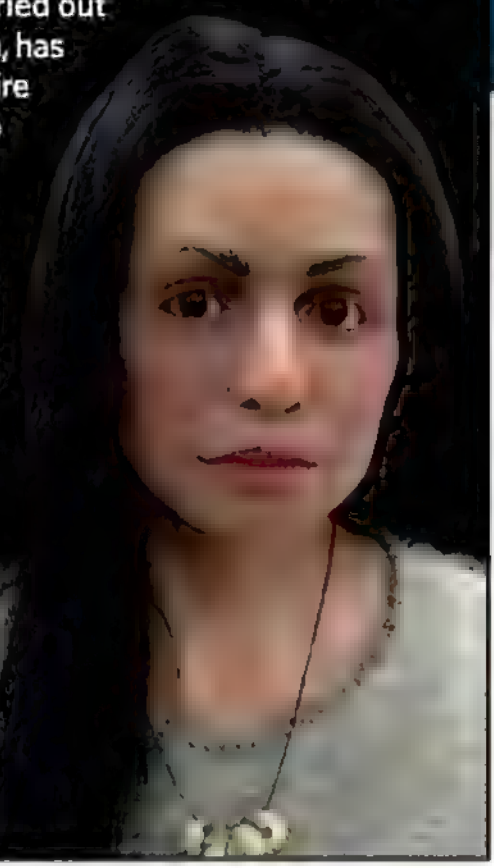
Story of the Skull

When Calpeia's skull was found in 1996, it was impossible to glean much information from it. Gibraltar's humid climate leads to a rapid deterioration of DNA, and the possibilities of extracting useful genetic material seemed unlikely at the time. DNA analysis was in its infancy, and the damage to the skull made it difficult to study.

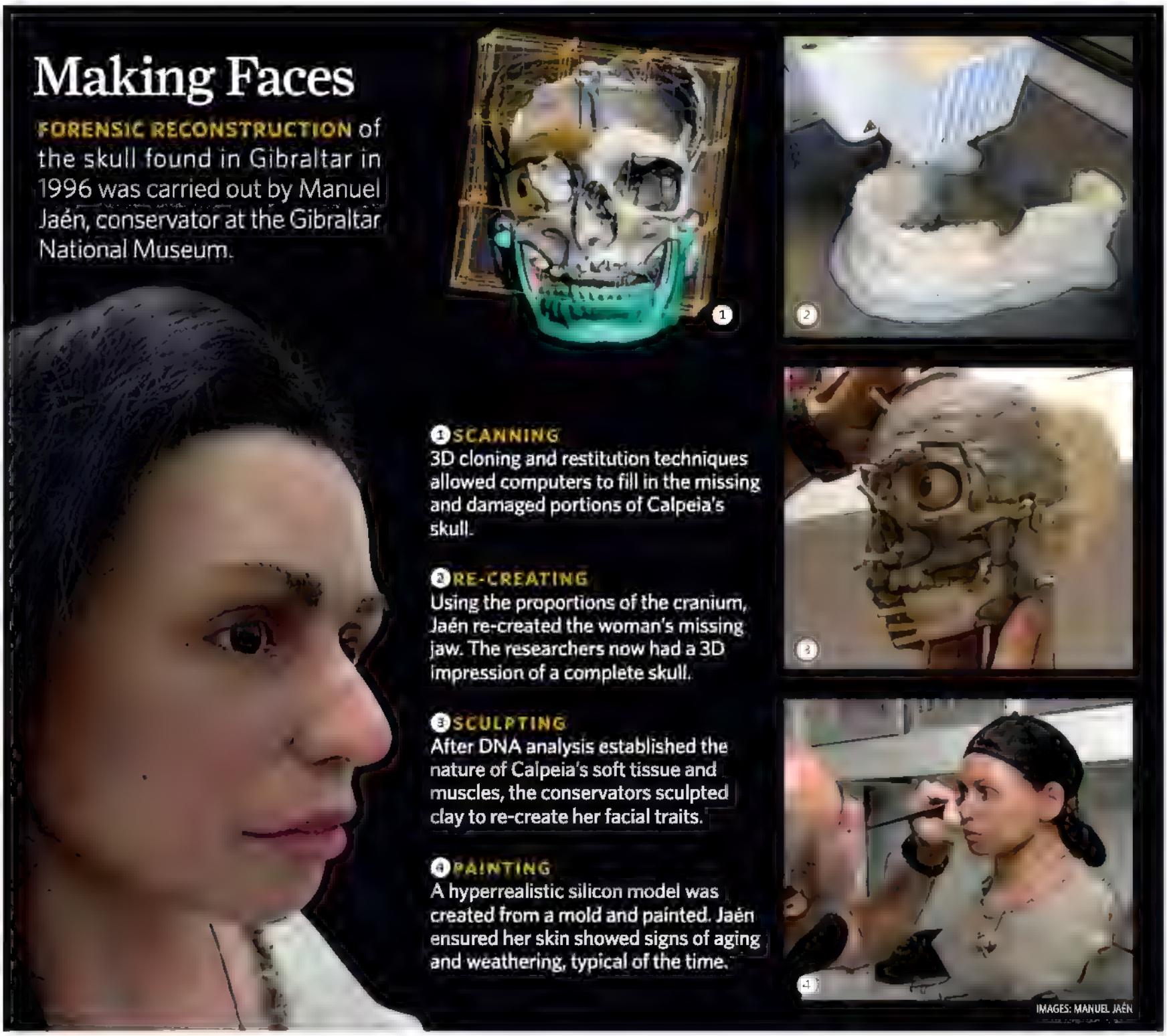
By 2019 the study of ancient DNA had made great strides. The journal *Science* published the genome analysis of 271 inhabitants of

THE EYES OF HISTORY

THE FORENSIC reconstruction of Calpeia's face, unveiled in 2019 and now on display in the Gibraltar National Museum, startles visitors with the modernity of her appearance. Manuel Jaén, the conservator who carried out the reconstruction, has stressed, "The entire face conforms to forensic parameters: the nose, hair, skin color . . . It's amazing; a lot of people have said that Calpeia looks very familiar."



RECONSTRUCTION OF THE FACE OF CALPEIA. GIBRALTAR NATIONAL MUSEUM
MANUEL JAÉN


Making Faces
FORENSIC RECONSTRUCTION of the skull found in Gibraltar in 1996 was carried out by Manuel Jaén, conservator at the Gibraltar National Museum.
1 SCANNING
3D cloning and restitution techniques allowed computers to fill in the missing and damaged portions of Calpeia's skull.
2 RE-CREATING
Using the proportions of the cranium, Jaén re-created the woman's missing jaw. The researchers now had a 3D impression of a complete skull.
3 SCULPTING
After DNA analysis established the nature of Calpeia's soft tissue and muscles, the conservators sculpted clay to re-create her facial traits.
4 PAINTING
A hyperrealistic silicon model was created from a mold and painted. Jaén ensured her skin showed signs of aging and weathering, typical of the time.
IMAGES: MANUEL JAÉN

Spain, Gibraltar, and Portugal, including the 1996 skull. Under the coordination of Harvard Medical School, researchers were successfully able to extract viable samples of ancient DNA.

The results told the researchers a great deal: The skull belonged to a woman who lived around 5400 B.C.—many millennia after the Neanderthals of Gibraltar had become extinct. She was slightly built, light-skinned, with dark hair and eyes. She was also lactose intolerant (a common trait for that period).

Dated to 7,500 years ago, Calpeia's life corresponds to the later Neolithic period. She lived at a time when agriculture and raising livestock were spreading across the Iberian Peninsula, displacing the old hunter-gatherer model. Her lactose intolerance indicates that dairy farming was most likely not part of her culture.

Calpeia's age when she died cannot be determined precisely from the skull. Her cranial sutures—the fibrous joints connecting the bones of the skull—suggest that she was an adult, somewhere between 25 and 40 years of age.

Head West

Researchers were most excited about what DNA revealed about Calpeia's ancestry. Only 10 percent of Calpeia's genome comes from the population found in the Iberian Peninsula, while the remaining 90 percent has its origin in Anatolia, modern-day Turkey. Farmers from Anatolia during the Neolithic period had a high percentage of alleles for dark eyes and light skin. By contrast, hunter-gatherers from central and western Europe show genetic markers for dark skin and light eyes.

Archaeologists believe that agriculture developed in

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THE CAVES of the Gorham's Cave Complex (a UNESCO World Heritage site) were once favored by Neanderthals. Many millennia later, in circa 5400 B.C., Calpeia's people would use nearby caves for their burials.

several areas of the world at roughly the same time. Anatolia was one of the global centers of the Neolithic revolution. From there, techniques for crop farming and animal husbandry slowly spread westward across the Mediterranean world and into Europe.

The high proportion of Anatolian components in Calpeia's DNA suggests that her Anatolian origins were recent. It is likely that Calpeia—or her parents or very recent ancestors—journeyed from Anatolia to Gibraltar by sea.

If Calpeia's people had traveled by land, their progress westward would have taken years or generations. Their DNA would have mixed with local populations along the way, making Calpeia's resulting genome more diverse.

Analysis of genes of individuals from the Mediterranean island of Sardinia also finds a high proportion of Anatolian genes, bolstering the theory that Anatolians traveled west over the Mediterranean.

Whether agricultural produce traveled with them has not yet been established. No archaeological evidence indicates agricultural activity at this period in Gibraltar. It is likely that Calpeia and her cohorts hunted and fished.

Even so, archaeologists have uncovered the remains of wheat seeds dating to the same era in which Calpeia lived, around 125 miles away. She lived on Gibraltar at a time of great change in human customs, a transformation that she—or her Anatolian relatives—were doing much to introduce and to spread.

A NEOLITHIC VESSEL OF THE TYPE USED IN GIBRALTAR DURING CALPEIA'S TIME

MANUEL JAÉN

It is likely that Calpeia—or her parents or very recent ancestors—journeyed from Anatolia to Gibraltar by sea.

MANUEL JAÉN, SCULPTOR OF THE CALPEIA FORENSIC RECONSTRUCTION, IS A CONSERVATOR AT THE GIBRALTAR NATIONAL MUSEUM.

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Next Issue

LEDA AND THE SWAN EMERGE DURING THE 2018 EXCAVATION OF A VILLA AS PART OF THE GREAT POMPEII PROJECT.
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POMPEII'S BURIED TREASURES

BACKED BY the latest technology, a massive archaeological effort has uncovered more wonders in the Roman city of Pompeii. The Great Pompeii Project, funded by the European Union and the Italian government, has undertaken an ambitious new plan to reveal more ancient wonders preserved by a volcanic eruption in A.D. 79. Astonishing discoveries—fantastic frescoes, intricate mosaics, and vibrant gems and jewelry—are stunning archaeologists with their beauty.

THE FIGHT FOR THE RIGHT TO VOTE

IN JANUARY 1917 American women still did not have the right to vote, and a determined group of activists devised a new strategy to get it. Every day for months, these women—the Silent Sentinels—challenged the status quo by picketing the White House bearing signs that challenged Woodrow Wilson with messages like "Mr. President, How Long Must We Wait for Liberty?" Imprisoned and abused for their persistence, these activists fought with bravery and daring to secure passage of the 19th Amendment.

AN AMERICAN SUFFRAGETTE DEMONSTRATING IN WASHINGTON, D.C., DURING WORLD WAR I
AKG/ALBUM

The Hanging Gardens of Babylon

Ancient writers described Babylon's wondrous gardens as an enchanting sight and marvel of irrigation, but solid archeological evidence of their location—and existence—has not yet been found. Archaeologists continue to sift through fact and legend in the hunt for this wonder of the world.

Decor for the Dead

The tombs of the rich and powerful in ancient Egypt were covered with myriad works of sacred art. These elaborate paintings were created by skilled artists who preserved Egyptians' fascinating religious beliefs in colorful detail.

Dawn of the Atomic Age

The world's first two atomic bombs detonated over Japan in August 1945, unleashing devastation on the cities of Hiroshima and Nagasaki. Though hopeful that Japan would surrender, the United States developed backup plans—including a third nuclear bomb—if World War II raged on.

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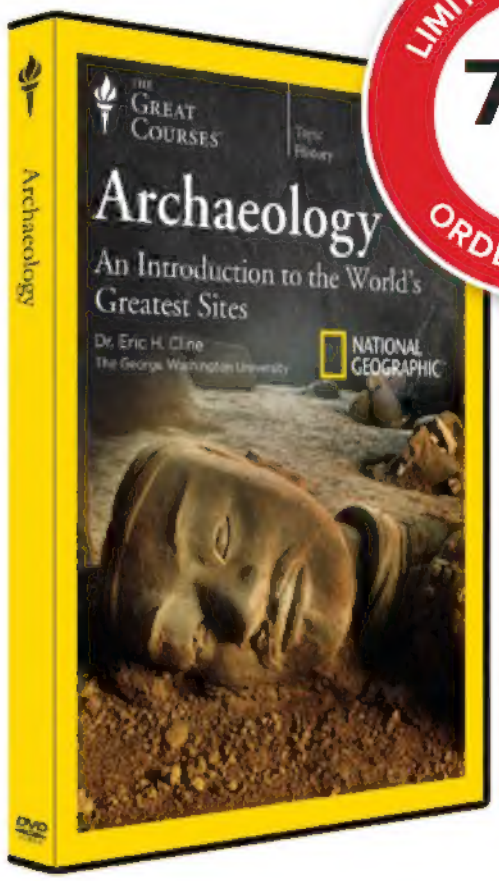

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